DOCUMENT RESUME

ED 050 816 PS 004 677

AUTHOR	Spaulding, Robert L.
TITLE	Educational Intervention in Early Childhood: Abstracts of the 1965-1970 Special Studies Research and Evaluation Report. Final Report, Volume III.
INSTITUTION	Duke Univ., Durham, N.C.
SPONS AGENCY	Danforth Foundation, St. Louis, Mo.; Ford Foundation, New York, N.Y.
PUB DATE	Apr 70
NOTE	179p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$6.58
DESCRIPTORS	Abstracts, *Behavior Change, *Cognitive Development, Disadvantaged Youth, *Educational Programs, Infants, *Intervention, Learning, Parent Child Relationship, *Social Relations

ABSTRACT

This volume is the last of three which report the results of the five-year Education Improvement Program in Durham, North Carolina. Volume III consists of abstracts of special studies conducted by the investigators in the program. Some of the studies have been published in professional journals. The three volumes, together, constitute the final report to the Ford Foundation. Followup studies using the data gathered during the five-year span of the program will be conducted during the next few years and reported in the appropriate professional journals. A 25-page annotated bibliography is included in this document. Volume I of this report appears as PS 004 675, and Volume II is PS 004 676. (AJ)

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DURHAM EDUCATION IMPROVEMENT PROGRAM

Final Report

Volume III

Educational Intervention in Early Childhood

ABSTRACTS OF THE 1965-1970 SPECIAL STUDIES

RESEARCH AND EVALUATION REPORT

by

Robert L. Spaulding

Director

Education Improvement Program

Duke University

PS 004677

The Durham Education Improvement Program was a project of the Ford Foundation under the auspices of the Southern Association of Colleges and Schools whose Education Improvement Project is funded by the Ford and Danforth Foundations. It was jointly administered by Duke University, North Carolina Central University, Durham City Schools, Durham County Schools, and Operation Breakthrough, Inc.

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INTRODUCTION

This collection of abstracts includes all special studies conducted by personnel related to the Durham Education Improvement Program during the period July 1965 through April 1970. Abstracts of studies not yet completed will be included in the final report of the project (to be published in September 1970).

In some cases these abstracts refer to reports which have subsequently been published in professional journals. Others were written and distributed as EIP special reports. Information regarding the full reports can, in most cases, be obtained by writing to the senior author. A list of author's names and current locations is presented on page ii. An annotated bibliography of all position papers, articles, instruments and reports prepared by EIP personnel during the period July 1965 to April 1970 is appended to this report.

Permission to reproduce or quote from abstracts contained in this report must be obtained from the senior author.

Many persons have been responsible for the planning, data collection, data processing, and reporting for these special studies - in addition to the authors named. Special thanks go to Dr. Donald J. Stedman, Dr. James J. Gallagher, Dr. Nicholas J. Anastasiow, Dr. Sally A. Sibley, Dr. Barbara H. Wasik, Dr. Lloyd Borstelmann, Dr. William G. Katzenmeyer, and Mrs. Betsy Lowman for their primary roles in research and evaluation in the Durham EIP.

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April 27, 1970

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BEHAVIOR MODIFICATION

Behavior Modification: The Effects of Social Reinforcement and Isolation with Two- and Three-Year-Old Nursery School Children

Barbara H. Wasik and Mary Papageorgiou

This behavior modification study began when two teachers in a nursery school for culturally disadvantaged children asked for help in controlling the aggressive behavior of a three-year-old boy, Sidney. This child had frequent temper tantrums sometimes lasting for half an hour and often disrupting the class for the rest of the day. Sidney's aggressiveness toward others and destructiveness with the classroom equipment resulted in teachers and peers avoiding contact with Sidney.

To modify Sidney's undesirable behavior two procedures were initiated: (1) isolation for aggressive or tantrum behavior, and (2) increased positive teacher attention contingent upon appropriate behavior.

Data were taken on all children in the nursery school in order to determine possible relationships between Sidney's behavior and the behavior of other children in the class. The CASES (Coping Analysis Schedule for Educational Settings) classification system was used for recording data on Sidney and other children. A verbal-nonverbal interaction classification system was used to record teacher interactions with the children. Fifteen-second time samples were coded for 12-minute periods on the teachers' interactions and 10-second time samples were coded for three-minute periods on the children's behavior.

During the four days of baseline data, Sidney's mean desirable behavior was 76.25%. The treatment data indicated a sharp increase in his desirable behavior and a decrease in behaviors requiring isolation. The mean percent of desirable behavior rose to 84.45% in the first two weeks of treatment and increased to 91.11% by the last two weeks of treatment.

Although the teachers were successful in applying behavior modification techniques with Sidney, they failed to generalize the same methods to all children. Mean appropriate behavior for the whole class during baseline and treatment was slightly above the 90% level. Although this may appear high, there were still many occurrences of disruptive, resistive and aggressive behavior. After further observation, it was suggested that the teachers implement the following techniques with all the children: (1) increased positive reinforcing interactions for sustained periods of desirable behavior and for maintained desirable behavior after a change from undesirable behavior, (2) increased verbal interactions (as opposed to the complacent non-verbal), (3) increased structuring of activities, and (4) increased redirection of inappropriate behavior and follow-through of consequences.

During the first three weeks of treatment the mean percent of desirable behavior for all children including Sidney was 87.16%. In the remaining four two-week periods the mean desirable behavior increased first to 91.19%, peaked at 95.13%, and returned to 91.15%. The increase in desirable behavior above 90% occurred at the time of increased emphasis on the four types of interactions listed in the paragraph above.

Behavior Modification: A Year-Long Study of the Behavior Problems of a Culturally Deprived Child

Barbara H. Wasik and Ellen F. Elsas

Billy, a six-year-old Negro boy from a disadvantaged background, has been the subject of a year-long behavior modification program in which many techniques have been used to increase his appropriate and productive classroom behavior. He was diagnosed as a problem in the 1968 EIP summer kindergarten. His teachers had extreme difficulty coping with his aggression toward both teachers and children and with his disruptive attention-seeking behavior. A token reward system which was used for the entire class made little difference in increasing his appropriate behaviors, but informal observations of his behavior suggested that there had been some improvement.

In the fall, data were collected on all the children in the ungraded primary. The data collected on Billy indicated he was demonstrating more problem behaviors than he had in the summer. Data, coded by CASES, were collected on Billy and teacher interaction data were recorded on his teachers.

A general behavior modification program was in effect with all the children in the ungraded primary. This involved a period of choice time twice a day when the children were able to participate in favorite activities. The amount of choice time they earned was contingent on the appropriateness of their behavior that day. In addition, positive social reinforcement was given for behaviors the teachers desired to increase. To decrease or

extinguish inappropriate, attention-seeking behaviors, the teachers withheld their attention. Aggressive or disruptive behaviors were decreased by using social isolation in a quiet area apart from the room.

In general, this same treatment program was used for Billy. In addition, consistent teacher interaction with Billy was stressed, as well as the structuring of all his activities. Before sending Billy to the quiet room the teacher warned Billy of consequences of his unacceptable behavior and isolated him if he made no move to stop this behavior.

Another goal of the study was to increase Billy's appropriate peer interactions. For this purpose a time each day, over a period of several weeks, was set aside for him to work or play with a responsible child. These sessions were apparently successful, not only increasing his social interactions with his classmates but also increasing their acceptance of him.

An uneven but overall behavioral improvement was noted. When desirable behavior stabilized at about 80% in activities supervised by the lead teacher, data collection was dropped to one sampling a week in her groups; more frequent collection was continued in groups led by the teacher aide. Aggressive behavior was nearly eliminated and the frequency of isolation decreased significantly. With many of his undesirable behaviors decreased or eliminated, Billy's academic productivity improved greatly. Throughout the spring whenever there was a return to less structure and an inconsistent use of contingencies, his aggressive and disruptive behaviors increased. Although much improvement in his behavior has been seen, he still behaves appropriately only under close supervision in highly structured settings.

- an EIP Publication

Efforts to Increase the Attending Behavior of a First Grade Girl

Sondra Timoll

This behavior modification study was initiated in order to increase the attending behavior of Betty, a first-grade white girl in a school for culturally deprived children. Data taken during a summer kindergarten program, as well as the observations of psychological testers, indicated that Betty displayed very little attending behavior, e.g., listening and completing assigned tasks. The subject's attending behavior and the teacher's verbal and non-verbal interactions with Betty were recorded simultaneously in order to study the consequences of the type of teacher attention on the child's behavior. There were four phases of the study - baseline, modification I, post-modification, and modification II.

During baseline, Betty displayed a great deal of nonproductive, playful behavior which hindered her academic performance. Specifically, she would prance around the room, tease other children, and copy work from her classmates' papers. Furthermore, Betty would often raise her hand and volunteer irrelevant, silly comments in order to attract the teacher's attention. Three times a week for 10 minutes during academic sessions, Betty's behaviors were recorded as attending (A) or non-attending (N). Attending behavior was defined as overt behavior which

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indicated that the child was listening, following directions and concentrating on the academic task at hand. The percentage of daily attending behavior during baseline fluctuated between 10 and 72%. The average attending behavior was 44%.

Since the subject seemed to engage in attention-seeking behaviors, it was hypothesized that selective adult attention would be an effective treatment variable for increasing appropriate attending behavior. Positive teacher attention (i.e., praising, smiling, applauding) was made contingent upon attending behavior. Withholding of social reinforcement was made contingent upon non-attending and negative attention-getting behavior. Under these conditions, Betty's attending behavior increased to a mean of 82% for five days. However, after this five-day increase, the child's attending behavior decreased and remained low for three days. As a result of the decrease, it was hypothesized that more immediate, tangible rewards were needed to stabilize Betty's attending behavior. Therefore, stars were selected as an additional treatment variable. The use of stars as rewards for attending behavior resulted in a great increase in attending behavior, which was maintained above 85%.

During post-modification, treatment procedures were terminated. Specifically, no stars were given for attending behavior and teachers were asked to resume interacting with Betty as they had during baseline. With the exception of one day on which Betty's attending behavior was low, her attending behavior was maintained above 90% for the two-week reversal period. Apparently reinforcement had generalized to other stimuli, such as good grades and peer reinforcement, and these were now helping to maintain Betty's appropriate behavior. Upon reinstatement of treatment procedures, Betty's attending behavior increased and remained above 95%.

- an EIP Publication

Behavior Modification: A Short-Term Study of the Problem Behaviors of a Second Grade Boy

Barbara H. Wasik and Jeanne Mason

The goal of this behavior modification study was to eliminate the disruptive, aggressive and resistive behaviors and to increase the appropriate peer interaction of "Wade," a seven-year-old boy in an ungraded primary in a demonstration school for culturally deprived children. A treatment program was outlined based upon subjective classroom observations, behavioral data, and the results of a case conference. The program emphasized teacher consistency in defining limits and applying consequences, positive teacher attention in the form of praise and attention contingent upon appropriate classroom behavior, and social isolation and withholding choice time contingent upon unacceptable behavior.

The subject's behavior was classified according to CASES and the teacher's interactions with "Wade" were classified in positive, neutral, structuring, redirect, and negative categories. "Wade's" behavior and the teacher's interactions with him were recorded simultaneously on an event recorder.

One morning shortly after the treatment program was put into effect, "Wade" was so aggressive and disruptive that all of his choice time was taken away and he had to work in a room by himself all day. At the end of the day a note was sent home to his grandmother explaining the events

of the day. This precipitated a telephone call to the teacher which resulted in a very fruitful exchange between the teacher and grandmother. It was believed by the investigators that the grandmother's acceptance of the treatment program and her conveyance of this fact to "Wade" were effective variables in contributing to the success which was obtained. This was particularly important since the child was known to attempt to play one adult against another to obtain his wishes.

Eight days of baseline data taken over two weeks showed that the mean amount of time spent in appropriate behavior was 78.30%. During the first eight days of treatment taken over three weeks, the mean increased to 84.77%. It was during this time that the interaction with the grandmother occurred. The last seven days of treatment taken over five weeks showed another increase - to 87.93%. When the subject's data indicated his behavior was no longer a problem in the classroom, the study was terminated.

- an EIP Publication

Token Reinforcement of Disadvantaged First Grade Boys Presenting Classroom Behavior Problems

Sally A. Sibley, Jeanne Mason, Ellen F. Elsas and Judy Simpson

Four boys in an EIP first grade were designated by their teachers and the curriculum personnel as requiring special and extra attention in order to develop satisfactory classroom behavior and skills. Among the behavioral problems presented by one or more of the children were tantrums, physical aggression, withdrawal, deficient and unintelligible speech, and deficient attention and direction-following.

Data were taken for 30 minutes daily for six months while the boys were together with one teacher apart from the rest of the class. Two technicians recorded the data on an event recorder. One technician classified the behavior of each child as desirable (verbal or non-verbal), inappropriate (passive, verbal active, non-verbal active), or unacceptable (verbal or non-verbal). The other technician recorded the teacher's interactions with each child, coding them as neutral, positive, negative redirection, questioning, social and token.

During these periods, the teacher presented language, science and math units followed by related work periods. Besides the goal of teaching the boys specific content, the goals were to develop behavior patterns conducive to learning and, more importantly, to increase intelligible and

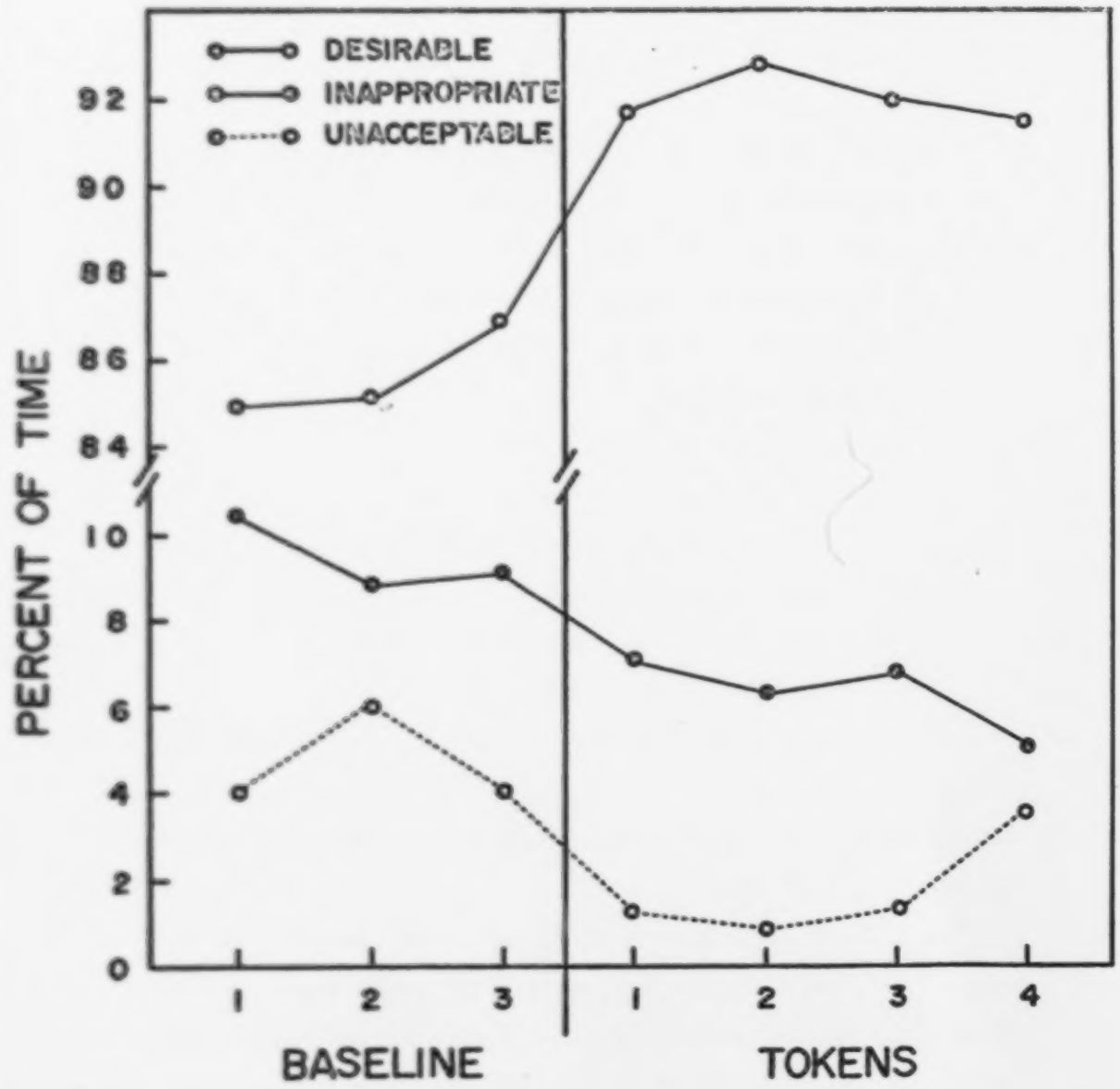
appropriate speech.

Several experimental conditions were instituted to produce the desired behavioral changes. For five days the teacher was given no supervision (other than curriculum preparation) in conducting the class. On the 10 following days, the teacher was given instructions and encouragement to socially reinforce desirable behavior, particularly verbal; to ingnore inappropriate behavior, and to isolate the subjects for unacceptable behavior. Subsequently, stars with no material value were delivered by the teacher for desirable behavior. Finally, for 28 days, the subjects were given stars, exchangeable at a miniature store, when desirable behavior was evident.

The number of tokens given each day was decreased so that during the first seven days a total of 714 were delivered as compared to the last seven days' total of 223. During the second seven days the store was closed on some days so subjects were forced to save their tokens until the store opened again. During the last seven days of the token treatment, the store was only open three days.

All children increased their desirable behavior during the token treatment as compared to the baseline (initial, social, and stars without exchange). Inappropriate and unacceptable behaviors decreased for all children. More interestingly, the desirable verbal behavior of the subjects increased under the token reinforcement condition. As shown in Figure 1, the increases were maintained over the 28 days even though the amount of token reinforcement was systematically decreased over these days.

In summary, non-manipulatable tokens were employed to increase the desirable behavior, verbal and non-verbal, of four disadvantaged first grade boys after social reinforcement techniques had failed.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BASELINE
TOKENS

Severity Rating of Punishments by Children

Teresa M. Leonhardt

This study was undertaken to determine which of a select number of punishments young students felt to be severe. In order to obtain a measure of severity, five first grade and five second grade Negro and white children were asked to rate six punishments. The punishments selected were those felt to be used frequently by teachers.

The six punishments were:

1. I am not proud of you.
2. I do not want you near me.
3. I do not want to talk to a child who does that.
4. I am disappointed in you.
5. I want you to stay alone there.
6. I do not like bad children.

The subjects were asked to rate each punishment on a 3-point scale according to two dimensions - hard on him and easy on him. Subjects were aided in making the rating by use of visual cues representing the three points of the dimension.

Results are presented in Table 1. The larger the mean, the more severe the rating. The data indicate that children perceive not being liked by the teacher as most severe, and having to stay alone as least severe. Boys and girls differ in their ratings. Boys rate as least

severe, the teacher's not wanting them near her, and most severe, the teacher's being disappointed in them. Girls, however, rate the teacher's being disappointed in them as least severe. They rate as most severe the teacher's not wanting them near her and not liking them.

Table 1

Severity Rating of Punishments

Punishments	Mean Boys	Mean Girls	Mean Total	S.D. Total	Severity Rank
1. I am not proud of you.	3.8	4.2	4.0	.82	4
2. I do not want you near me.	2.6	4.8	3.7	1.42	6
3. I do not want to talk to a child who does that.	4.4	4.6	4.5	1.08	2
4. I am disappointed in you.	4.8	3.8	4.3	1.16	3
5. I want you to stay alone there.	3.2	4.6	3.9	1.59	5
6. I do not like bad children.	4.4	4.8	4.6	1.08	1

Use of Cognitive Dissonance to Produce Changes in the Attitudes and Behavior of Economically Disadvantaged First Grade Children

Teresa M. Leonhardt and Adrian S. Cato

This study was undertaken to investigate the possibility of using mild threat of punishment to produce dissonance in economically disadvantaged children. Sixty subjects, 20 in each of three groups, counter-balanced for race and sex, were tested individually. Three levels of threat were used to discourage children from playing with a toy they had rated as attractive: no threat, but removing the toy from the room; mild threat; and strong threat.

Two measures of dissonance were used: first, a change in ranking of the forbidden toy and second, the number of minutes the child played with the forbidden toy when the prohibition was removed. The measure was taken on the day of the original testing and again several weeks later.

Predictions derived from dissonance theory are as follows: (1) the group which received the mild warning should experience dissonance for not having played with the forbidden toy and rank it lower or play with it less; (2) the group which received the strong warning would feel no dissonance and not change rank of toy or play with it less; (3) the group which received no warning should not lower the rank or play with it less. Chi-squares on the number of subjects in the three groups who ranked the

the toy higher, did not change the rank, and ranked the toy lower were insignificant. An analysis of variance and two t-tests on number of seconds of play indicated that the mild group played differentially in the two play periods: the mild group played least during the first period and most in the second period. The results seem to indicate that any initial beneficial effects of dissonance as a behavioral control technique with economically disadvantaged children are not maintained across time.

- an EIP Publication

An Experimental Summer Kindergarten for Culturally Deprived Children

Barbara H. Wasik and Sally A. Sibley

An experimental summer program was conducted to build academic and social skills in a group of culturally deprived children who would be entering first grade in the fall. A curriculum program designed to teach the children certain skills was in effect throughout the summer. This included language and reading programs, an arithmetic program, and training in cognitive skills. There were also art, music, and play times. In addition, a behavior modification was in effect. This program utilized a token economy system in which tokens were given for appropriate classroom behavior. At the beginning of the summer, tokens were exchangeable for items in a school store (candy, toys) and at the end of the summer, tokens were exchangeable for time to participate in choice activities.

Pre- and posttest measures on the ITPA and on special area tests showed that significant gains were made in the areas of language, speech, pre-reading, elementary arithmetic and in the ability to handle abstract concepts.

The results of pre- and post evaluations showed that significant gains had been made on the WPPSI Verbal, Performance, and Full Scale IQ scores and on the Similarities and the Picture Completion subtests. On the ITPA the boys made gains above the 5% significance level on total

Language Age and on the Visual Decoding, Auditory-Vocal Association and the Visual-Motor Sequential subtests. The girls made gains above the 5% level of significance on the Auditory-Vocal Association, Visual-Motor Association, Auditory-Vocal Automatic, Visual-Motor Sequential subtests and on total Language Age.

The results of a behavior maturity scale rating were inconclusive; the ratings on the post evaluation were lower than they were on the pre-evaluation, yet the teachers stated that the children had progressed and matured during the summer. The Preschool Attainment Scale ratings indicated that the children were reaching the ceiling of this assessment test. They were rated as functioning at the expected level for their age, and without a ceiling effect these ratings may have reflected a somewhat higher level of functioning.

The impact of the summer program was supported by the level of functioning of these children when they entered first grade. They had a broad base of skills upon which their teachers could begin to build. Early follow-up assessment of these children suggests that the gains made during the summer are being maintained.

- an EIP publication

Learned Expectations and Drive States as Determinants of the Effectiveness of Social Reinforcing Stimuli

Elisha Y. Babad

An experiment was conducted to determine the role of learned expectations in modifying the effects of human social deprivation. The notion that the effects of social deprivation are solely a function of the drive state of the subjects (defined by the number of previous presentations of a social reinforcer) was challenged, and it was hypothesized that specific social expectations, cognitively learned in treatment phases, also contribute to this effect. Nine-year-old children had two 10-minute treatments on successive days in which they were presented (by E1) with the stimulus word good, 2 (deprivation) or 20 (satiation) times. On the third day they were given the same (2 or 20) treatments or a different (20 or 2) number of stimulus presentations by E2, and a discrimination learning test by E1. Test performance was highest for the group satiated in the first 2 days and deprived on the third and lowest for the group having 3 satiation treatments. The groups having 2 deprivation treatments on the first two days were in the middle, with slightly higher performance for the group with three deprivation treatments. The overall performance of boys was superior to the girls. The results suggested that while

the immediate drive state (defined by the third treatment) was the major source of variation, performance was nevertheless influenced by the treatments of the first two days. The notion of individualized value was rejected and a generalized expectation, encompassing the whole experimental setting was posited instead.

The Role of Social Expectations in the Relative Satiation Effect

Elisha Y. Babad

The thesis that the potency of a social reinforcer is an inverse function of the subject's satiation level was questioned. It was hypothesized that the existence of social expectations is a necessary condition for the satiation effect to occur, and that this effect would disappear were the expectations to be minimized. In a 10-minute treatment period subjects were presented with the word good either 2 or 16 times. This was followed by a discrimination task under continuous reinforcement with good. The task was administered either by the same experimenter or by a new experimenter, unknown to the subjects. Changing experimenters was found to increase performance and the difference between the deprivation and satiation treatment groups disappeared, however, when the test was administered by an experimenter other than the one who gave the treatment. Differences in task performance were significant for the "same experimenter" condition but not for the "other experimenter" condition. Thus the hypothesis is that social expectations produced by differential treatments would interact significantly with success

in a subsequent learning task under conditions of continuous reinforcement, was supported. The potency of a social reinforcer (i.e. good) appears to be dependendent upon a subject's experience with the social agent, as well as the schedule of reinforcement provided by that agent in the past.

Behavior Modification with Culturally Deprived School Children: Two Case Studies

Barbara H. Wasik, Kathy Senn, Roberta H. Welch, and Barbara R. Cooper

Techniques of behavior modification were employed with 2 second grade Negro girls in a demonstration school for culturally deprived children to increase the girls' appropriate classroom behaviors. A classification system that provided for continuous categorization of behavior was used to code the children's behavior in 2 class situations. Data were also taken on the type, duration, and frequency of the teachers' verbal interactions.

The study included 4 conditions: baseline, modification I, post-modification, and modification II. The treatment variable was positive social reinforcement which was presented, withheld, or withdrawn (time out from social reinforcement). Positive social reinforcement in the form of attention and approval was contingent upon desirable classroom behaviors. Withholding of social reinforcement was contingent upon inappropriate attention-getting behaviors. Time out from social reinforcement was contingent upon behaviors classified as aggressive and resistive.

At the end of 25 days of modification I, there was a marked increase in desirable behavior for each girl. The teachers were then asked to return to their baseline level of performance. The resultant behaviors demonstrated that for one girl behavior was still primarily under the control of the treatment contingencies. For the second child, many desirable

behaviors that had increase in frequency during modification I remained high, but there was an increase in inappropriate behaviors. When treatment was reinstated, the amount of time spent in desirable behaviors increased and remained high for both girls. 3 checks during the 3 months following data collection showed that these behaviors continued to remain high.

- Journal of Applied Behavior Analysis
in press, 1969

Behavior Modification: The Contingent Use of Teacher Attention and Choice Activity Times

Barbara H. Wasik

The three boys in this behavior modification study were in the second grade in a demonstration school for culturally deprived children. Academically they were functioning at a low first grade level and exhibited a low frequency of those behaviors necessary for school success. In this study two procedures were combined that have been successfully utilized in classroom behavioral control: (1) Positive social reinforcement in the form of teacher praise and attention was made contingent upon appropriate classroom behavior. (2) Time to participate in a free-choice activity (games, toys, and crafts) was made contingent upon the prior occurrence of specifically defined classroom behaviors. Data were collected on the children's behavior by use of a classroom classification system. Data were also taken on the type, duration, and frequency of the teachers' interactions.

The procedure of this study afforded a special opportunity to investigate the behavior of the boys in the same setting but with teachers who demonstrated different teaching styles. After several weeks in the modification condition, all three boys showed marked increases in the amount of time spent in appropriate behavior.

- an EIP Publication

Effects of Positive Social Reinforcement on the Negative Behavior of a Kindergarten Child

Robert L. Spaulding and Marilyn Rothbard

This study was undertaken to determine whether a planned reinforcement schedule of positive adult attention could be used to alter the negative, disturbing behavior of a kindergarten boy. The aim of the study was to help the child acquire acceptable, cooperative, conforming behavior and to eliminate antisocial, negative, attention-getting and resisting behavior with peers and adults, through the systematic application and withholding of positive reinforcement - in this case, adult attention.

"Walter" was one of fourteen children enrolled in an EIP Demonstration Kindergarten. At the beginning of the study, "Walter" was five years, six months of age. He had been in attendance at the school for nine weeks. From his entrance into the kindergarten class, "Walter" was an aggressive child whose behavior included destroying property as well as pushing and hitting his peers. He often exhibited negative attention-getting behavior, such as annoying and bothering other children by touching and grabbing them or their belongings, making inappropriate noises, shouting, using profanity, and crawling under or climbing on tables, all apparently for the pleasure gained by being the center of attention.

Baseline data on "Walter's" behavior pattern was acquired prior to the reinforcement period. Following that, positive reinforcement was

presented whenever the child elicited behavior considered appropriate and/or acceptable for the particluar activity. Reinforcement consisted of positive adult attention. Specifically, the adult stayed near the child, watched his activities with interest and pleasure, gave praise for efforts and achievement, and occasionally helped through moderate participation in the activity.

Withholding reinforcement consisted of casually becoming occupied with another child or group of children or merely moving physically away from the child whenever his behavior was viewed as unacceptable or inappropriate. A generalization period followed when the behavior reinforced in the second stage had reached a relatively stable level on an intermittent, as opposed to a continuous, reinforcement schedule.

Considerable gain was made in reducing negative attention-getting behavior and a sharp reduction in aggressive verbal outbursts was noted. Prior to a full exploration of the effects of the reinforcement period and the generalization capabilities of the child, the family moved from the Durham area and the study was discontinued.

- an EIP Publication (abstract only)

The Application of Premack's Generalization on Reinforcement to the Management of Classroom Behavior

Barbara H. Wasik

A behavior management procedure was successfully employed in a demonstration school for culturally deprived children to increase appropriate behavior in a second grade classroom. A free-choice activity was introduced into the classroom and access to this activity was made contingent upon the prior occurrence of desirable behavior. Data were collected on 19 children twice a day in an individual work time and in a group work time and were coded according to a classroom behavior analysis schedule. There were four experimental conditions: baseline (prior to the contingency conditions), modification I (free-choice activity time contingent upon the occurrence of appropriate classroom behavior), postmodification (removal of the contingent activity time), and modification II (reintroduction of the contingent activity time.) In both classroom functions, the average percent of desirable classroom behavior increased during modification I when compared with baseline levels. These behaviors decreased when the contingent activity time was removed, but increased again during the reintroduction of the contingency phase.

- an EIP Publication

Modification of Immediate and Delay Gratification Patterns of Disadvantaged Primary School Children Through Imitation

Sally A. Sibley, Patricia Barton and Teresa Leonhardt

This study, carried out with EIP six-year-olds, is a partial replication of a 1965 investigation by Bandura and Mischel. Modifications from the original study include the change in population, addition of race as a variable, decrease in the delay time from weeks to one day, and substitution of a taped model for the written one. The latter two changes were made to adapt the procedure to a new population.

Seventy-two disadvantaged children, equally divided by race and sex, who displayed distincly high and low delayed gratification patterns on a pre-test, were assigned to one of three treatment conditions. One group observed a live model (white, female) who exhibited a delay of gratification pattern opposed to the child's initial tendencies; another third of the group were exposed to a video-audio tape of the same model displaying the opposite delay patternof the child; a final group had no exposure to models. The delay preference test was again administered after the experimental treatment when the model had left. Subjects were readministered the test for delayed gratification two weeks after the experimental treatmen in order to assess stability and generalization of the effects.

- an EIP Publication (abstract only)

Classroom Behavior Modification Techniques

Applied to Educationally Deprived Primary School-Age Children

James J. Gallagher, Nicholas Anastasiow, Barbara Cooper, Betty Cooper, Louisa Douglass, Anne Funderburk, Rebecca Gordon, Jean Hoppe, Marylin Rothbard

Three children manifesting unfavorable behavior traits at the laboratory school were given systematic reinforcement for favorable behavior. This reinforcement was first food and then social. Baseline data and follow-up data were also obtained. Two of the children showed favorable advance under this procedure while the other child showed resistance to attempts to modify her passive resistant behavior. It was concluded that this approach can significantly change classroom behavior of children at this age.

- an EIP Special Study Publication

Modification of the Classroom Behavior of a Disadvantaged Kindergarten Boy Using Social Reinforcement and Isolation: "Bobby"

Sally A. Sibley, Martha Abbott and Betty Cooper

This is a representative study of one of several individual case studies in behavior modification of children in EIP classrooms. These studies are carried out by a regular teacher in the classroom with an individual child whose behavior is inappropriate, deficient, or in some way deemed to be in need of change to a more appropriate pattern. The research staff collects data and decides with the teacher the reinforcement contingencies to be changed or provided in order to achieve the desired behavior pattern.

The goal of this study was to decrease disruptive, resistive, and assaultive behaviors and increase the appropriate peer interactions of a culturally disadvantaged kindergarten boy, "Bobby". The experimental program involved presentation of teacher attention contingent upon "desirable" classroom behavior, withholding of attention contingent upon "inappropriate" behavior, and social isolation contingent upon "unacceptable" behavior.

The child's behavior was classified according to the Coping Analysis Schedule for Educational Settings (CASES) and the teacher's interactions with the child were categorized according to their content (neutral, positive, negative). The child's behavior and the teacher's interaction with him were

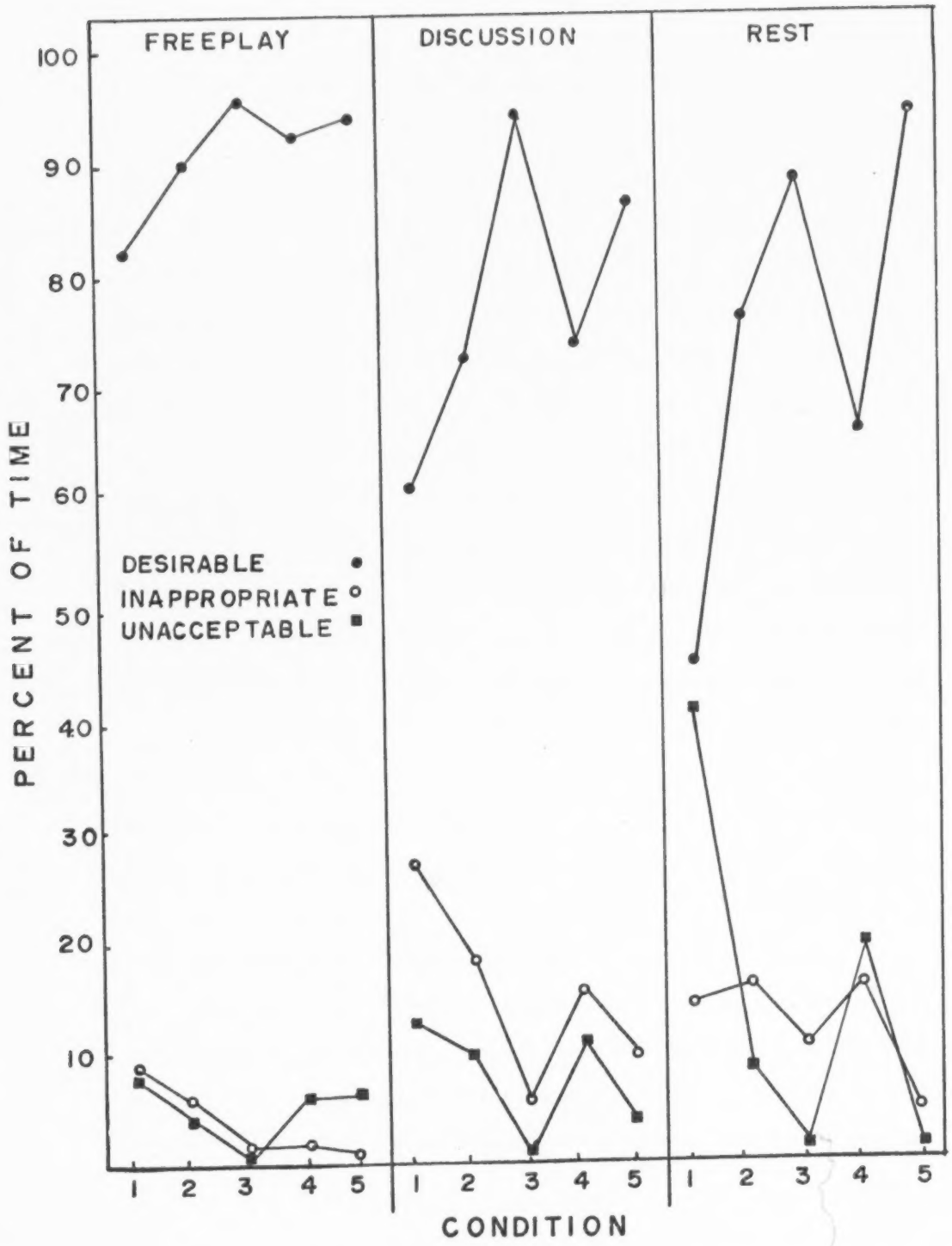
recorded simultaneously on an event recorder by an observer who had attained high reliability with other trained observers.

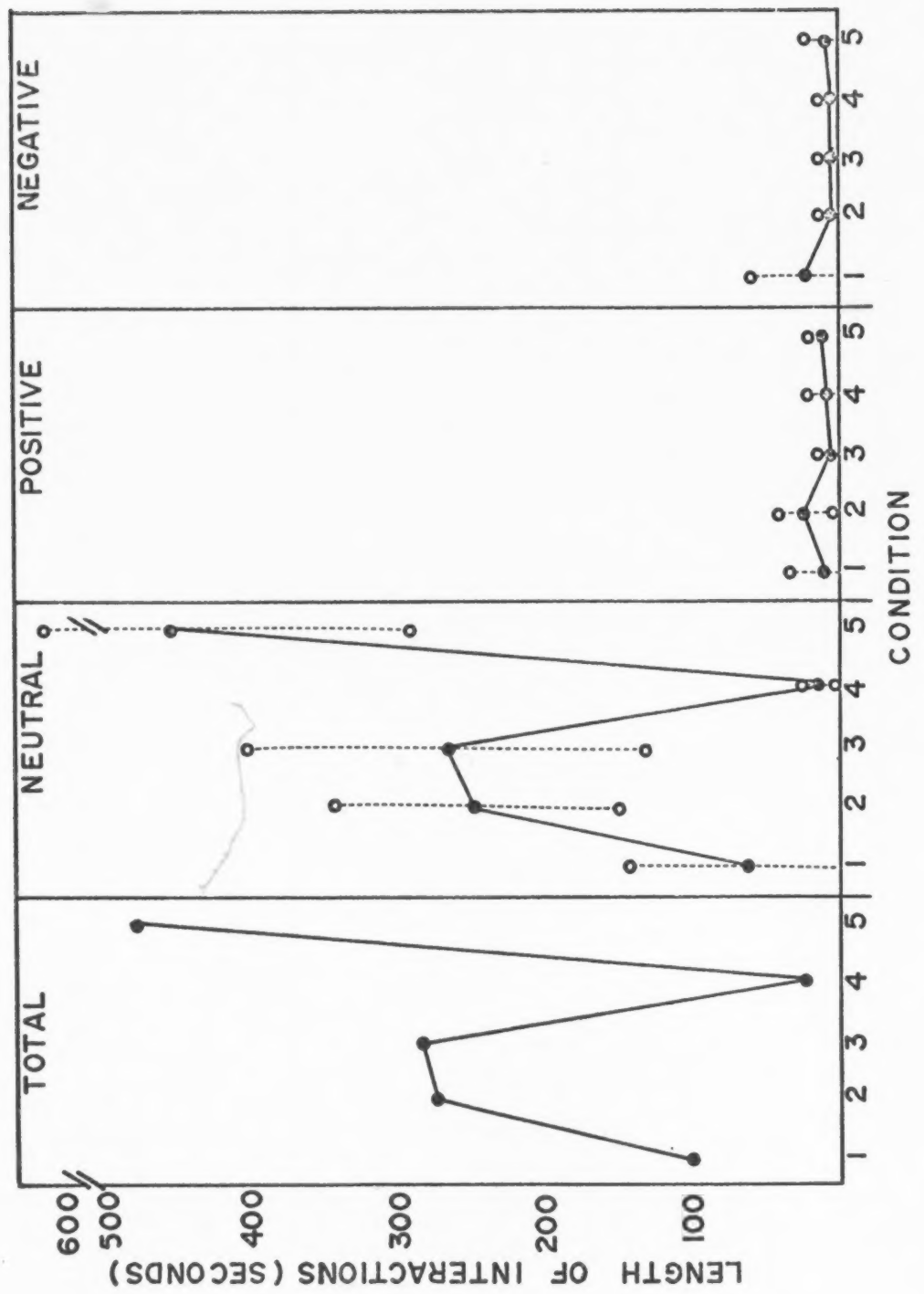
The baseline data supported the teacher's contention that the child was a behavior problem, particularly in strictly structured situations. The experimental program was carried out daily in the activities of free play, discussion, and rest. Some progress was made under the original program but Bobby's inappropriate and unacceptable behavior decreased further when they were punished (isolation) rather than ignored, perhaps indicating that they were being maintained by some reinforcer other than overt attention. A reversal of the treatment program (i.e., decreased positive interaction contingent upon desirable behavior and increased negative interactions contingent upon inappropriate and unacceptable behaviors) was introduced to demonstrate that the teacher's interactions were indeed the controlling variable. After the successful reversal, treatment was reinstated with favorable results. There were differential effects of the program as a function of the various activities.

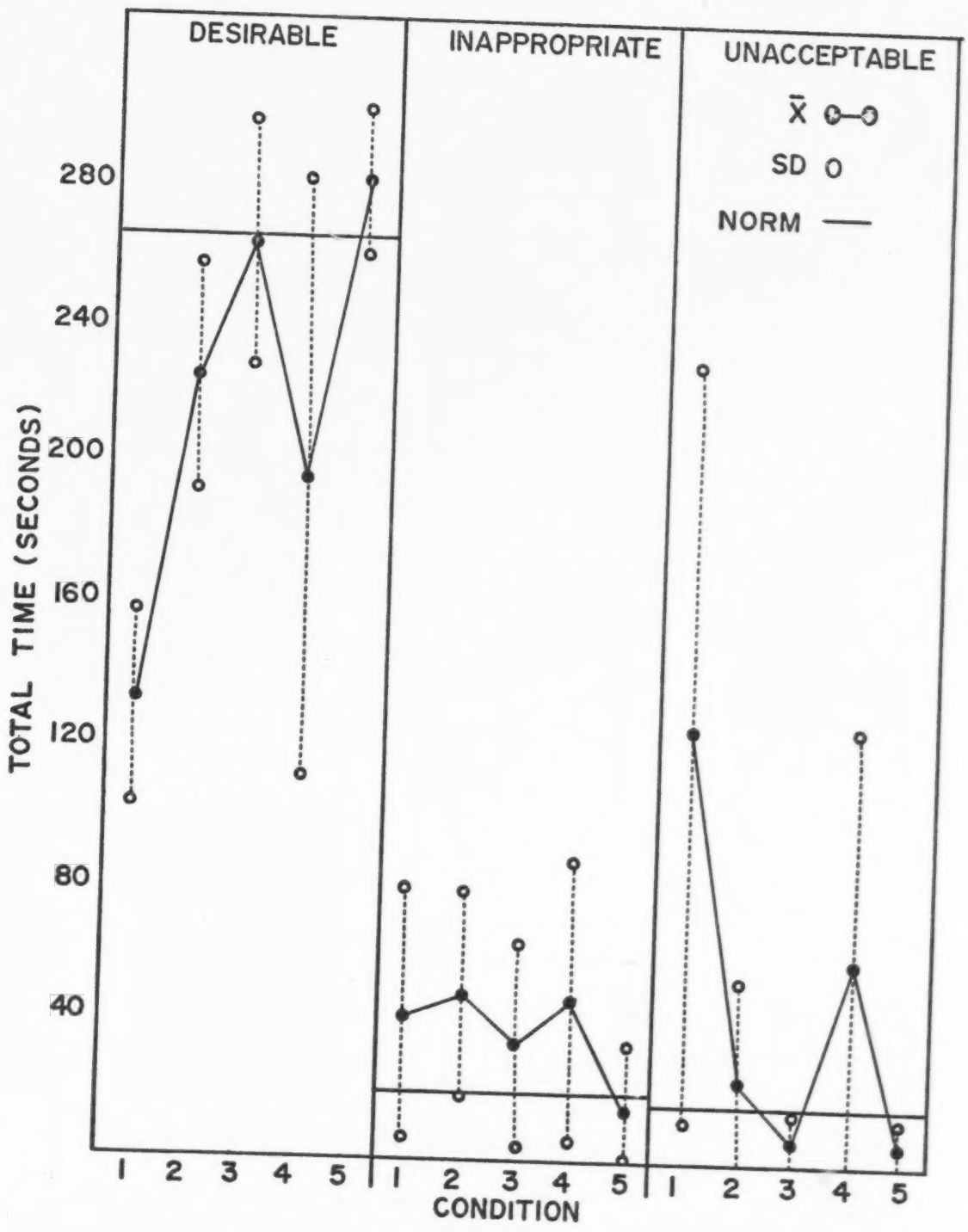
The study was terminated when the child's data indicated that his behavior was no longer a major and chronic problem in the classroom. Two checks were made after the termination of the experimental study which indicated that the teacher was maintaining the treatment as an integral part of the child's environment and that he was still responding favorably.

A sampling of the data from observations of the child's behavior pattern before, during, and after the experimental program is presented in the following tables, thus characterizing changes in the child's behavior pattern in the various conditions, during parts of the daily classroom program.

- an EIP Publication
Published in Journal of Experimental Child Psychology, 1969, 7 (2), 203-219


FREEPLAY
DISCUSSION
REST
100
90
80
70
60
50
40
30
20
10
PERCENT OF TIME
DESIRABLE
INAPPROPRIATE
UNACCEPTABLE
1 2 3 4 5
1 2 3 4 5
1 2 3 4 5
CONDITION


TOTAL
NEUTRAL
POSITIVE
NEGATIVE
LENGTH OF INTERACTIONS (SECONDS)
600
500
400
300
200
100
1
2
3
4
5
CONDITION


DESIRABLE
INAPPROPRIATE
UNACCEPTABLE
X̄
SD
NORM
280
240
200
160
120
80
40
TOTAL TIME (SECONDS)
1 2 3 4 5
1 2 3 4 5
1 2 3 4 5
CONDITION

Modification of the Classroom Behavior of a Disadvantaged Kindergarten Boy by Social Reinforcement and Isolation: "Larry"

Sally A. Sibley, Rebecca Gordon and Aloha Peyton

In order to administer the proposed reinforcement contingencies a teacher must modify his behavior within the experimental program. Although the absolute number of each type of interaction may fluctuate during treatment, the teacher should be able to maintain the same proportion of positive and negative reactions. This study explores the correspondence of teacher interaction and child behavior with a child called "Larry".

It was found that the teacher was not able to maintain the same proportion of positive and negative interactions across treatment days. The child tracked the trends of the teacher's behavior very closely. From other analyses of this investigation, it appears that the teacher had a great deal of difficulty in maintaining consistency throughout the treatment program. Instead, she tended to respond to the child's response to her attempt to interact, rather than to pursue the program despite his initial resistance. The teacher's inconsistencies are reflected in the child's inconsistency and vice-versa. In behavior modification studies, the teacher should be helped to behave on the basis of planned contingencies and not be discouraged by the lack of immediate reinforcement from the child.

This study was a success, in that it highlighted the teacher's difficulties in an experimental program and the lengthening nature of the child's problem

behavior, resistance, and lack of responsiveness to authority. This study demonstrates the necessity of focusing on the teacher's behavior, as is done in EIP classrooms, as well as the child's behavior, in carrying out a behavior modification program.

- an EIP Publication (abstract only)

Modification of the Classroom Behavior of a Disadvantaged First Grader by Food and Soical Reinforcement and Isolation

Sally A. Sibley, Louise Douglass, Ellen F. Elsas, and Judy Simpson

A behavior modification program was prescribed for an economically deprived first grade Negro boy who presented several extreme classroom behavioral problems. He failed to understand and/or follow simple directions, exhibited tantrum behavior frequently, and emitted few intelligible verbalizations.

After collection of baseline data in the form of pupil behavior and teacher interaction scales, the child's classroom environment was manipulated to produce changes in his behavior. Desirable classroom behavior was reinforced by food and teacher attention, whereas unacceptable behaviors were punished by social isolation. The effects of this program were strikingly positive. Extinction and reintroduction of the treatment program were initiated to demonstrate control of the subject's behavior by the environmental contingencies. Changes in the type of classroom behavior emitted by this child as a function of the program were analyzed.

- on ERIC Publications

LEARNING STUDIES

Methodology Used to Correct a Learning Deficiency in Arithmetic

Barbara H. Wasik, Kathy Senn and Alex Epanchin

This study was initiated to help a second grade boy overcome a deficiency in arithmetic. The child could count and do simple addition problems. However, he could not look at a number and respond with its correct name or write or point to a particular number when asked to do so. (He did respond correctly to numbers 1 - 5 and occasionally a few higher numbers.)

Initial work with him involved the use of an automated apparatus. Under investigation were the identification of numbers 1 - 20 by the sound of the number and the identification of numbers by counting dots representative of different quantities.

In the first part the child heard a number and was presented simultaneously with three numerals from which to choose the matching number. In the second part, the child was presented with a group of dots and then three numerals from which to choose the one equivalent to the dots.

Several different reinforcement techniques were utilized to increase the child's correct responses. Although a definite measure of success occurred under these conditions, it was believed possible to reduce even more the number of the child's errors.

An errorless discrimination learning paradigm was then used. This involved a person working with the child on a one-to-one basis, guiding and prompting him in his responses to exercises similar to those described above, and keeping errors at a minimum. This part of the study was not automated. Additional progress was made in the child's performance, but occasions were still noted in which he would respond erroneously.

The Effects of Schedule Requirements and the Amount of Contingent Time on Children's Lever Pressing Behavior

Barbara Wasik and Charleen Gorbet

Relationships between various operants have been under investigation in recent experimental work. If a person is presented with two similar situations in which to respond and then responds in two distinctly different ways with a different frequency of each type of response, then the probabilities of occurrence for the two responses differ. One can then make the more probable response (the reinforced response) contingent upon the less probable response (the instrumental response). Creation of such a contingency typically produces changes in the frequency of each response.

In this contingency case, two parameters are of importance:

1. One is the number of times the less probable response must be made before the "reinforced response" brings about the same consequences as before.
2. A second parameter is the amount of time the contingency is in effect after the "instrumental response" has been made the necessary number of times.

Work on these two parameters has been carried out with both animals and humans. It was the purpose of the present experiment to replicate and extend the previous experiments, using a population of culturally

deprived children. The first parameter was designated here as a "fixed-ratio,"or "FR,"with a numeral indicating the number of required responses. The second parameter was called "contingent time," or "CT," with a numeral indicating the number of seconds the contingency was available.

Three groups of children with six children in each group were tested. The apparatus consisted of a small box equipped with two levers, two counters and two lights arranged in two vertical arrays. Each array had a light on top with a counter and a lever below, in that order. One lever was designated the CRF lever, where the CRF stood for "continuous reinforcement schedule." When a subject pressed this CRF lever, he was shown one more digit on the CRF counter for each press. The schedule on the other lever (the fixed-ratio lever) required the subject to press the lever a set number of times before the FR counter would show another digit (i.e. FR 5). During a baseline condition in which each lever was freely available (that is, when the two levers operated independently), most of the subjects preferred the CRF lever. That is, most of their responses were made on the CRF lever. During contingency conditions, functioning of the lever preferred by most of the children (CRF) was made contingent upon the less preferred (FR) lever.

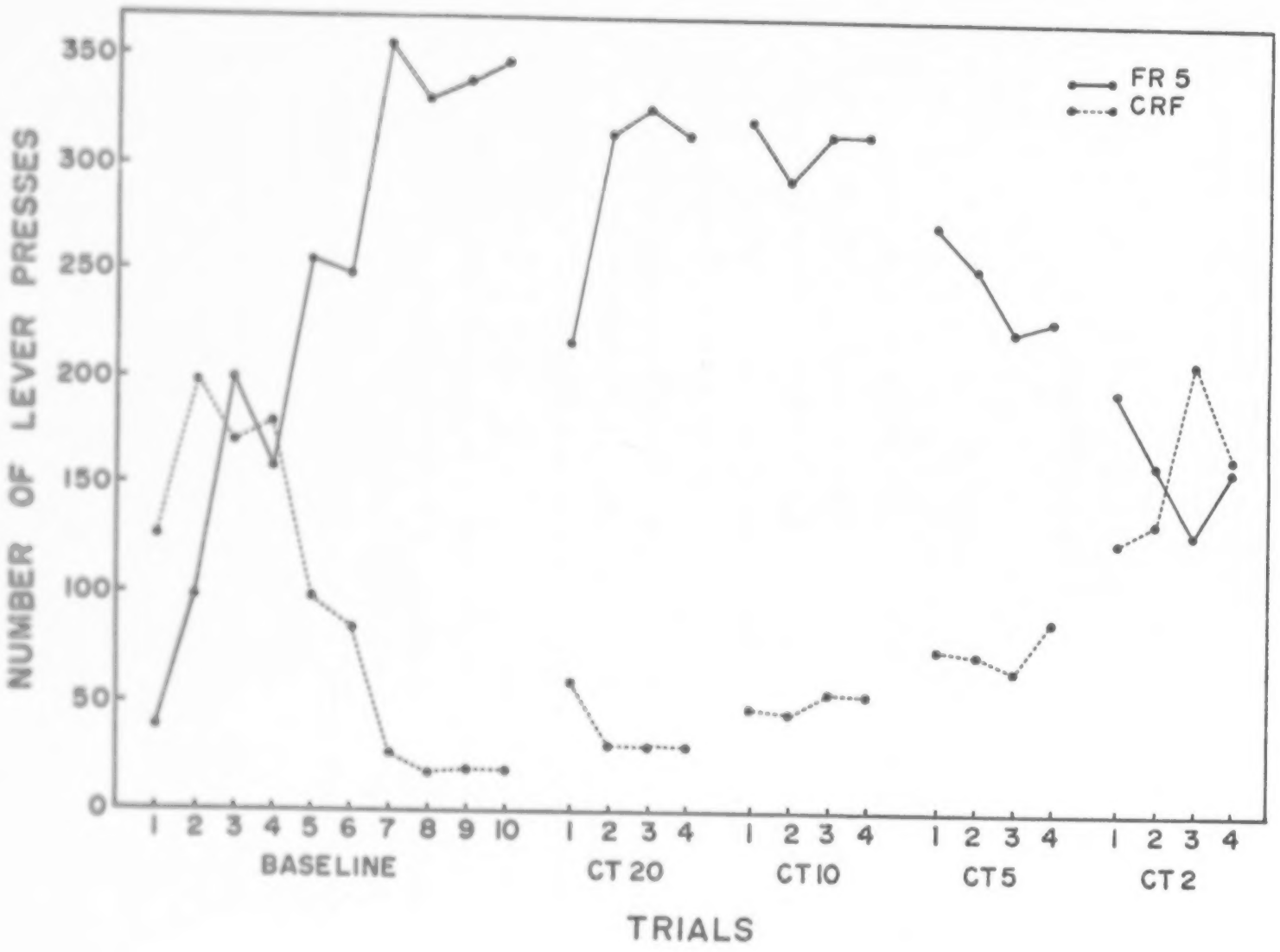
A variety of combinations of FR and CRF schedules was investigated. Data for the study as a whole are still being analyzed, however, one interesting case can be reported here.

In one of the three groups the FR was set at 5 and four different contingency times were studied - 20, 10, 5 and 2 seconds. The accompanying figure presents the data for one subject.

One can first note that this particular subject changed his preference from the CRF lever to the FR 5 lever after the second trial during baseline. The operation of the FR lever was much preferred during the last six baseline trials and this preference was sustained through all but the final contingency condition - where only 2 seconds were allowed for the CRF lever to be effectively operated after each 5 FR lever pushes.

These data caution one in regarding initial preferences as stable, as well as suggesting that, for this subject at least, interest in the CRF lever (with its constant one-to-one relationship with the CRF counter) was increased when the operating requirements were more restrictive.

This child appeared, therefore, to be motivated (reinforced) not by amassing the largest number of digits on the CRF counter but by the degree of demand made on his speed of performance set up by the decreasing time allowed for CRF lever operation in the four contingency conditions.


NUMBER OF LEVER PRESSES
350
300
250
200
150
100
50
0
FR 5
CRF
1 2 3 4 5 6 7 8 9 10
BASELINE
1 2 3 4
CT 20
1 2 3 4
CT 10
1 2 3 4
CT 5
1 2 3 4
CT 2
TRIALS

Work Rate of Disadvantaged Preschool Children at an Audio-visual Letter Discrimination Task as a Function of Token Reinforcement

Sally A. Sibley

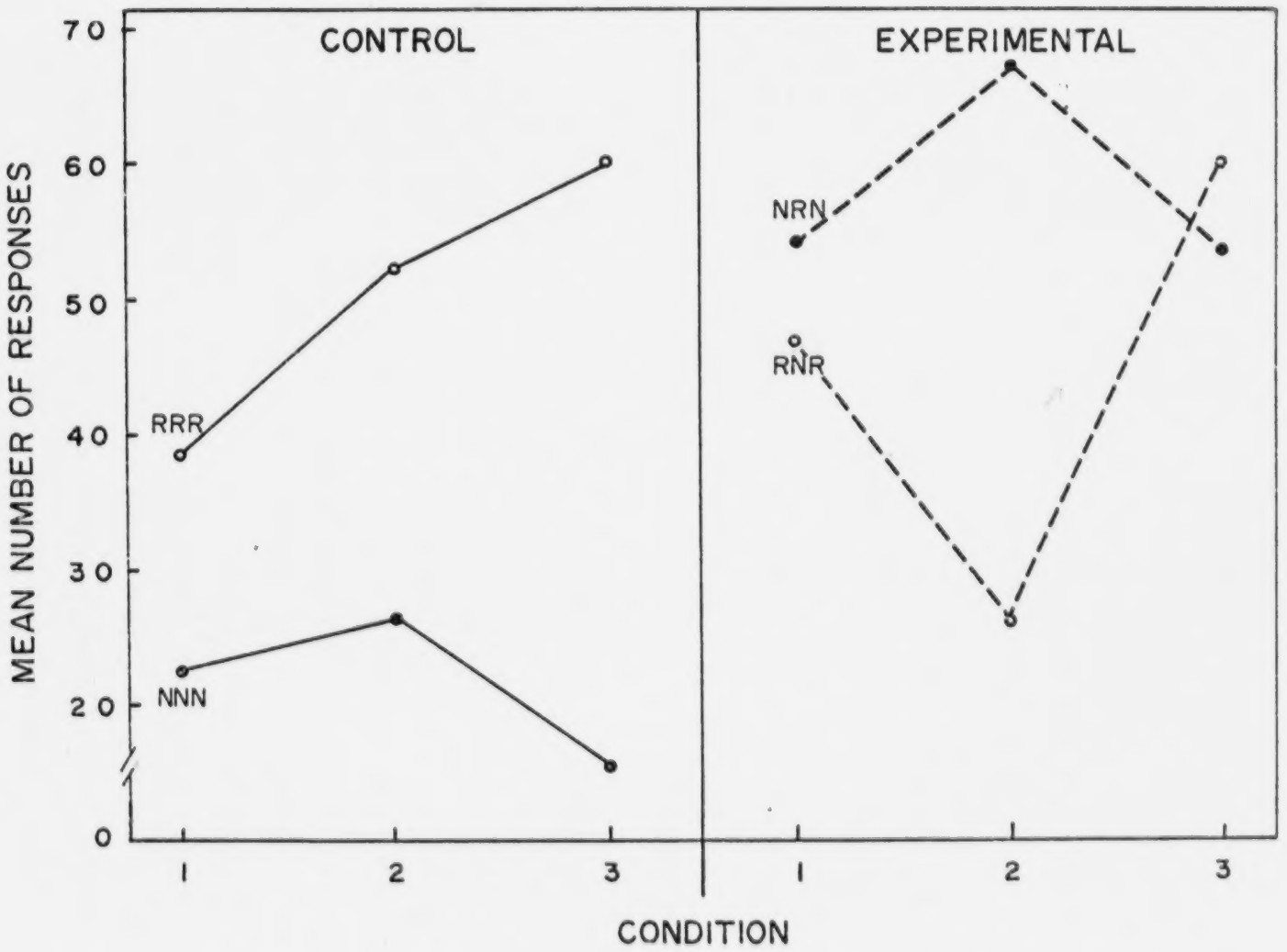
Twelve economically deprived children attending an EIP summer pre-first grade class were the subjects in this study of work motivation. The 20 children of the entire class were ranked by three teachers on two dimensions, ability in phonics discrimination and motivation to learn in the area. The children were also ranked on the basis of their ITPA language ages and their WISC intelligence quotients, both obtained at the beginning of the summer session. From the distributions of these four measures, the class was divided into thirds and four subjects were selected from each third.

The laboratory task presented to the 12 subjects was an audio-visual letter matching task. A trial consisted of the subject hearing a word and choosing the first letter of that word from three letters visually presented before him. The letters disappeared when the subject pressed the correct one. Fifteen consonants were involved in the 100 separate discriminations. All words were short and began with a consonant-vowel combination. The subject decided his own work rate within each five-minute session as a trial was initiated only by his pushing a start button.

The four subjects at each of the three ability levels were distributed into four experimental groups. Each of these groups thus contained a child from each ability level and no more than one subject of any particular sex and race combination. Each group received a different sequence of reinforcement conditions. The two conditions were no reinforcement and token reinforcement of trials in which the subject chose the correct letter on his first attempt. Each subject had a practice session under his initial condition. Group 1 (RRR) received six sessions with token reinforcement; Group 2 (NNN) received six sessions with no reinforcement. Group 3 (RNR) received two sessions with token reinforcement, two with no reinforcement, followed by two with token reinforcement. Group 4 (NRN) received two sessions with no reinforcement, two with token reinforcement, followed by four with no reinforcement.

The results are presented in the following figure. Analyses of variance were performed on the difference scores from condition 1 to 2, 2 to 3, and 1 to 3. All were significant at the .01 level. The reinforcement group (RRR) increased their work rate over the six sessions, while the group receiving no reinforcement (NNN) decreased responding. The two experimental groups responded more under reinforcement than no reinforcement, regardless of the sequence. The same effect was true with leaving the session as a measure of motivation. The reinforcement control subjects (RRR) never left a session prematurely, while the no reinforcement control subjects (NNN) left every session. The experimental groups increased their percentage of sessions left under the no reinforcement condition. Percentage correct was not obviously affected by the reinforcement condition.

- an EIP Publication


CONTROL
EXPERIMENTAL
MEAN NUMBER OF RESPONSES
70
60
50
40
30
20
0
RRR
NNN
NRN
RNR
1
2
3
1
2
3
CONDITION

The Effect of Reinforcement on Concurrent Operants

Barbara Wasik and Charleen Gorbet

Recent experimental work in the area of operant conditioning has been concerned with the problem of concurrent operants. Concurrent operants have been defined as two or more responses that are capable of being performed at the same time or in rapid alternation. Data seem to show that the dynamics of working with two responses is much more complicated than that of working with only one response.

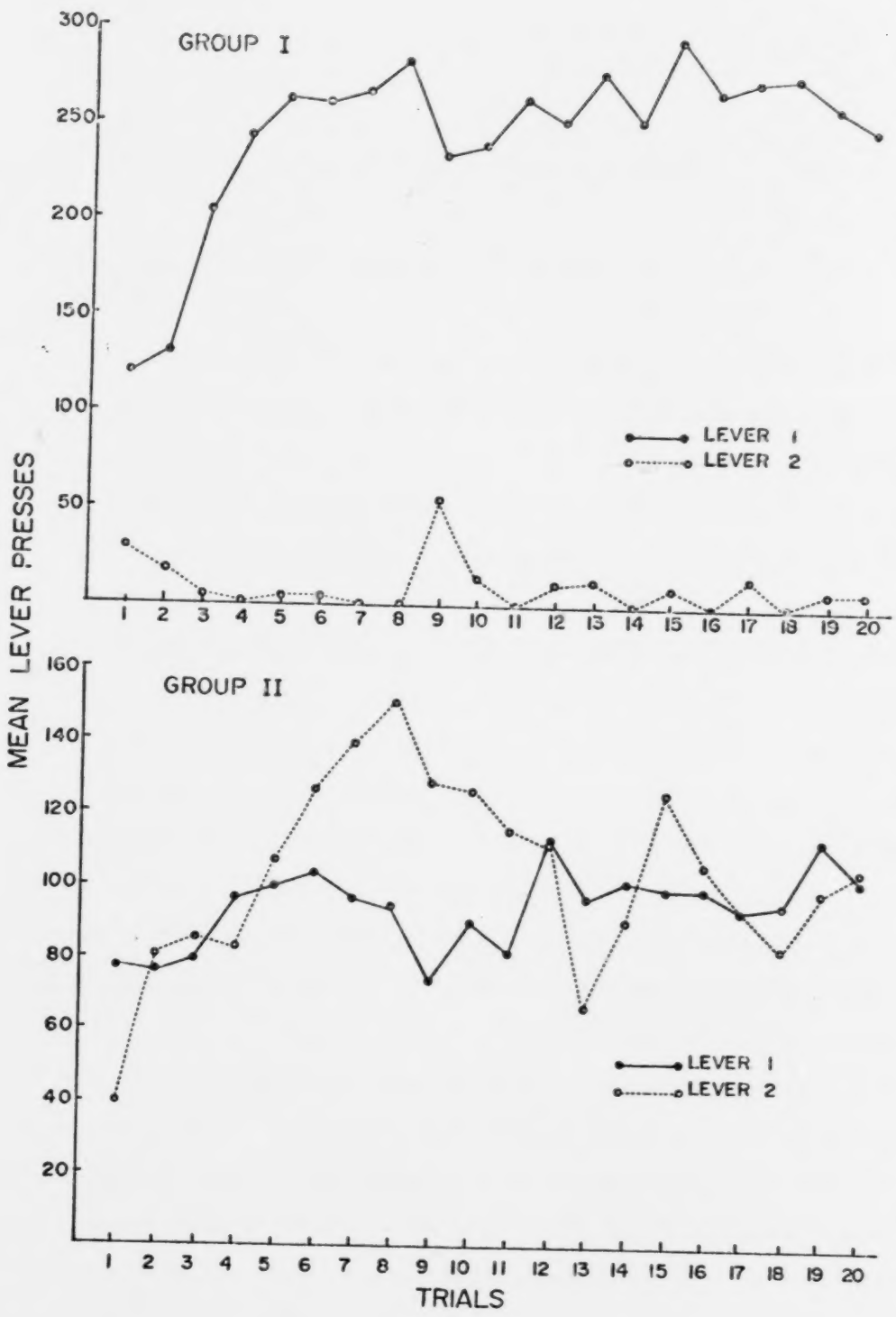
In this study a test was made to ascertain response differences to two levers presented concurrently under two different conditions. The apparatus consisted of a small box equipped with two levers and lights. Two groups of first grade EIP children were used in the study. For Group I, with 3 subjects, every ten presses on one lever yielded a marble, while presses on a second lever did not yield marbles. For the 3 subjects in Group II, ten presses on each lever would result in a marble. The marbles were exchangeable for small trinkets and edibles.

The upper panel of the following figure shows that across trials the subjects in Group I limited their responding to the lever that yielded marbles while responding at an almost zero level on the second lever. Group II, as seen in the lower panel, distributed their responding between the two levers. That is, they alternated between the levers throughout the experiment. This behavior persisted even though the subjects could

have earned as many, if not more, marbles by remaining on the same lever. The answer to why this behavior occurs is not readily apparent. Switching behavior often occurs when the consequence of switching is increased reinforcement. In this study switching behavior occurred between two responses even though each response was in the same reinforcement schedule.

A possible explanation of the persistence of switching behavior is that the children were more reinforced by the activity itself than in the number of marbles received and were anticipating possible variations in the consequences of a series of presses on each lever.

- an EIP Publication


GROUP I
300
250
200
150
100
50
LEVER 1
LEVER 2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
MEAN LEVER PRESSES
GROUP II
160
140
120
100
80
60
40
20
LEVER 1
LEVER 2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
TRIALS

Matching Behavior in Children

Barbara Wasik, Kathy Senn, and Jeanne Mason

In a laboratory study described above (Study 28) three children performed in an unpredicted manner. Throughout the experiment they distributed their responses between the two levers in such a manner that the points on each counter matched. For example, they would press the CRF counter once, thus gaining one point on this counter. Then they would press the FR counter 5 times which yielded one point on that counter. Following this, they would switch again to the CRF lever.

It was the purpose of this experiment to attempt to alter this matching behavior by varying the consequences that followed presses on each lever. In the first condition the children received one marble for every 12 presses on the CRF lever and one marble for every 60 presses on the FR lever. The marbles in this condition and subsequent conditions were exchangeable for trinkets and edibles. All three children continued to match points under this condition.

In the second condition the children received marbles only for presses on the CRF lever, one marble for every ten presses. Since the children still continued to match points, in subsequent conditions the FR requirement was raised (FR 10, 15, 20). This meant that the children had to press the FR lever an increasingly higher number of times to earn just one

CRF point and one marble. Under this condition all subjects ceased their matching behavior.

In subsequent tests for the occurrence of the matching behavior with these three subjects, the behavior was not found to be present in two subjects, but did occur in a third. This study demonstrates that one can systematically increase the amount of work required, in combination with a decrease of reinforcement for a particular response, to produce changes in preferred responses. When work demands alone were varied the matching pattern continued. Only when one lever (FR) ceased to be reinforced with marbles was increased work associated with decreased matching behavior.

- an EIP Publication

Work Rate of Disadvantaged Pupils at a Word Discrimination Task as a Function of Reinforcement Conditions

Sally A. Sibley, Patricia L. Gaines,
Alex Epanchin and Nancy Knapp

All twenty pupils of a second grade class visited the learning laboratory for at least three 8-minute sessions of a word discrimination task. In this situation, the subject controlled his own rate of work in that when he pressed a particular button, he heard a word from a tape recorder system and was presented three words visually. The child's task was to respond to the audio stimulus by pushing the window of the visual module in which the appropriate printed word appeared. When the correct window was pressed, the child was able to begin a new trial if he wished. The subjects could leave any session at any time.

Five boys - two Negro and three white - were ranked by their teachers being the least motivated to learn to read and to work at reading tasks. The five subjects were selected to continue sessions at the word discrimination task while various reinforcement conditions were introduced. First, points on a counter attached to the visual module were initiated. A subject received a point for each trial he initiated. Thus, work rather than accuracy was being reinforced. In later sessions, marbles were delivered to match each point; these marbles were not kept by the subjects.

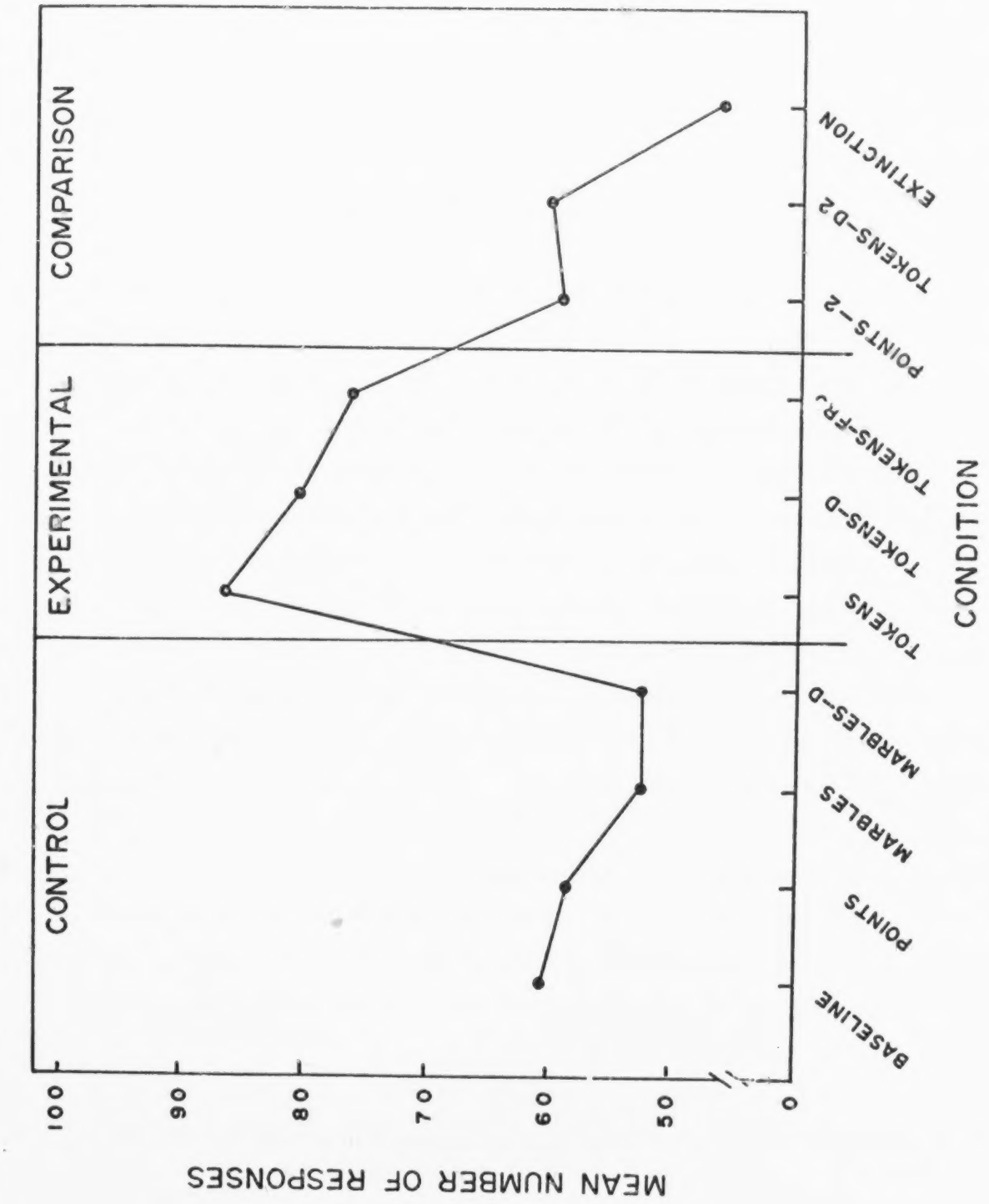
Marbles were consequently given token value by making them exchangeable for goods in a miniature store.

Following the sessions in which tokens were introduced, delivery of tokens became associated only with a green light on the visual module. Until this time, a red and a green light had appeared alternately for two minutes with no meaning for the subject. The green light now became associated with token reinforcement, the red light with non-reinforcement. The purpose of these sessions was to investigate the work rates under the two stimuli.

The results of this rather complicated study can be only briefly summarized, as in the following Figure. Work rate under points and marbles was not significantly different from rate of work under baseline conditions. Tokens significantly (.005) increased the work rate as compared to the marbles without token value. Work rate did not decrease significantly when tokens were decreased, although the difference in work rate under discriminating tokens and extinction was significant at .025. Thus, work rate decreased during extinction, when tokens were discontinued. An analysis of mean number of sessions left indicated that significantly (.03) more sessions were left under the control conditions than during the tokens. Less sessions were left during the green light during discriminated token sessions than during the non-discriminated sessions. Responding under the green light when this stimulus stood for reinforcement was higher during discriminated sessions and remained during extinction for four of the five subjects.

The results of the study stress the facilitating effect of conditioned reinforcement on work habits of academically unmotivated disadvantaged boys.

The purpose of this study was not to teach the boys to read, but to increase their rate of work at a word discrimination task. The results indicated that tokens were significant in increasing work rate and voluntarily staying with the task and, fortunately, accuracy did not decrease as rate of responding increased.


MEAN NUMBER OF RESPONSES
100
90
80
70
60
50
0
CONTROL
EXPERIMENTAL
BASELINE
POINTS
MARBLES
MARBLES-D
TOKENS
TOKENS-D
TOKENS-FR
POINTS-2
TOKENS-D2
EXTINCTION
CONDITION

A Study of Cumulative Learning

Marcel Kinsbourne

Nineteen children were tested on their ability to learn a list of visual-verbal paired associates, the stimulus items being in each instance "nonsense shapes" and the responses oral digits one to ten. Two methods of rehearsal were used: (a) "Classical presentation" - Each stimulus item was presented for five seconds alone and then for three more seconds together with the appropriate response. The subject was encouraged to verbalize the answer prior to appearance of the response item. The pairs were presented in sequence, one to ten, and these presentations were sequentially repeated until the list was learned or 10 minutes had elapsed, whichever occurred sooner. (b) "Cumulative learning" - Presentation of stimulus, first alone and then together with response, as well as encouragement to anticipate, were as above. However, stimulus items were presented in the following novel sequence: a, ab, abc, a. . . n. Criteria for terminating the test were as before.

Results: Fourteen subjects learned faster by the cumulative method, three by the classical, and two equally fast by both. The advantage of cumulative over classical method was significant at the five per cent level of probability.

It is concluded from this pilot study that at least with children of the type tested, there seems to be an advantage in presenting materials

for rote learning by the cumulative method. This advantage could be either in terms of decreased interference from erroneously recalled items, or due to motivational benefit of not revealing the full range of materials to be learned at the first run through.

Cooperation and Sharing Behavior among Culturally Deprived Preschool Children

Barbara H. Wasik, Kathy Senn and Alex Epanchin

Culturally deprived Negro and white kindergarten children were paired in like sex dyads for investigation of cooperative and sharing behavior in an experimental game. To study cooperative behavior each subject of a dyad was seated in front of a panel with two switches, one white, the other red or blue. Whenever the red switch or the blue switch was pressed, a matching colored light came on for one second. When the white switches were pressed simultaneously, a white light came on for three seconds and a marble rolled into a box in the center of the table. The pair was allowed to play until they earned nine marbles.

To investigate sharing behavior each subject was allowed to divide the nine marbles he and his partner had earned. Selfish behavior, delineated by two definitions used in published literature, was analyzed. In one definition the percentage of trials on which a subject retained more marbles than he gave to his partner was calculated to determine the amount of selfish behavior. The second definition called for the calculation of the actual number of marbles retained and given away by a subject.

The results indicated that the subjects were using the cooperative switch a significantly greater number of times than the non-cooperative.

Males cooperated more than females and white subjects more than Negro subjects.

Using the first definition, the males kept more marbles for themselves on 97% of the trials, while females kept more on 77% of the trials. From the second definition, the subjects demonstrated selfish behavior by retaining 55% of the marbles. No difference was noted between sexes. Thus different results are obtained by using the two different definitions of selfish behavior. Care must be exercised in comparing data in studies of selfish behavior to make sure the results are comparable.

- Psychonomic Science, 1969, 17 (6)

An Investigation of the Cognitive Processes of Disadvantaged Children

James J. Gallagher, Carol Dixon and Anne Funderburk

In an effort to explore the cognitive abilities of disadvantaged children through the systematic application of lessons designed to focus on the child's attention on classification, analogies, and systems, 10 six and seven-year-old children (five boys and five girls) enrolled in an EIP ungraded primary group were presented with a series of tasks designed to illustrate three different cognitive operations that the primary grade child should master. Materials for this study were designed in the dimensions of classification, matrices, and family relationships.

Each of the groups of five children received two lessons each on the classification and analogies (or matrices) tasks and one session on family relationships.

Performance of the children on the cognitive tasks indicated poor performance in classification abilities, rather incoherent explanations for the bases for groupings, apparently limited use of verbal mediators to relate perceptual images, limited ability to verbalize in general, and a tendency to lapse into functional relationships in attempting to group items. The matrices or analogies task indicated that the dimension of color provided the simplest dimension and resulted in the fewest number of errors. Completeness or wholeness seemed to cause the most trouble,

followed by shape, quantity, position and pattern. In this task, it was often apparent that the children were operating primarily in the perceptual image mode rather than in the conceptual mode and were not making extensive use of verbal mediators in problem solving. Verbalizations were fragmentary and concrete.

Analysis and interpretation of the family relationships lesson is underway, but incomplete.

In general the performance of the children upheld the notion that language-limited children, such as the disadvantaged, may be restricted to the more primitive perceptual mode in dealing with information rather than the more complex and sophisticated conceptual mode utilized by the language-rich child. Operating at this lower level amounts to a learning disability in a classroom situation.

- an EIP Special Study Publication

CLASSROOM LEARNING

Relationships Between Motivational Rank and Ability Rank in Reading

Sally A. Sibley

In preparation for a larger study, first and second grade EIP teachers were asked to rank the members of their respective classes two times; once according to their motivation to learn to read, and again on their reading ability. Correlations between these rankings are presented below. In general, the strongest relationship between motivational rank and ability rank was found in the second grade and the relationship was apparently stronger among the girls than the boys.

A Mann-Whitney U test indicates that in the first grade the girls were ranked significantly (.02) higher motivationally than the boys.

	First	Second
Boys	.81	.94
Girls	.96	.92
All	.79	.90

Spearman rho

Retention Testing of Kindergarten Math Concepts

Sally A. Sibley

As reported in the Durham Education Improvement Program 1966-1967 Annual Report, two EIP kindergarten classes received a prenumber, geometrically-oriented math program for approximately eight weeks. There were no significant differences between the two classes which received different reinforcement treatments as far as achievement gains were concerned. Both classes gained significantly over pretest scores. The two groups were pooled for the present analysis.

When the experimental children entered the first grade, the test was administered again to the experimental subjects and to all the other members of the two first grade classes involved. All experimental subjects who did not enter an EIP first grade were eliminated from this particular analysis. Due to this change, pre- and post-test means were recalculated.

Test score means were compared by t tests. The pre- (23.47) and post-test (37.18) means of the experimental group were significantly different beyond the .005 level. The retention test given in the first grade yielded a mean of 30.06 for the experimental group which was significantly different from the pre-test mean at the .005 level. The conclusions for the experimental group are that they gained significantly as a result of the curriculum experience. Although they did lose some

of this gain over the summer, the retention test still shows a significant increase over the pre-test.

The test mean of the control group (22.25) who received no experience with the curriculum and had not been in an EIP kindergarten was not significantly different from the pre-test score (23.47) of the experimental group. But as compared to the retention test of the experimental group (30.06), the control group was definitely inferior.

This study indicates that the experimental group achieved very obvious and specific gains due to the kindergarten math curriculum they received in combination with test practice effects. The control group was essentially at the same level in the first grade as the experimental group had been in kindergarten before the curriculum. Even after three months, the experimental group maintained a significant amount of gain.

Whether the performance of the children who received the curriculum is a very isolated and specific gain or whether it is a more widely predictive achievement is presently being investigated.

Retention of Mathematics Concepts

	Kindergarten		First Grade
	Pre-test	Post-test	
Experimental (N = 17)	23.47	37.18	30.06
Control (N = 24)			22.25

The Use of a Creative Writing Study to Increase the Language Development of First Grade Children

Nicholas J. Anastasiow

A group of first grade boys and girls were identified as needing additional experience with language development before continuing a formal reading program. These children were enrolled in a summer program of creative writing. A control group was selected from the same school, and did not attend the summer session. The experimental group teachers attended a "creative writing" workshop, in which creative writing techniques were introduced as the core curriculum of the summer program. Measures of the child's spontaneous verbal fluency and articulation were obtained. No significant differences were observed. The measure, however, was an inadequate test of the program. The measure depended upon the verbal production of the student, which was not an adequate assessment of the child's language.

Observations within the classroom revealed increased complexity of written work, increased production of written and dictated stories and greater pupil involvement in classroom activity. It is suggested that samples of children's work be collected and analyzed for linguistic complexity in future studies rather than relying on the child's verbal production.

- an EIP Publication

The Effectiveness of Innovative Language Lessons in Language Development

Nicholas J. Anastasiow

A series of innovative language lessons were introduced to an experimental group of kindergarten and first grade students (Taylor, 1969; Cooper, 1968). The lessons were conducted 15 minutes a day for six weeks. All children made positive gains in object identification. Most children made gains in articulation. Measures of general language proficiency were not available, but the teacher's observation and data encourage further testing of the material to determine its effectiveness in language development.

- an EIP Publication

The Importance of Tools
in a Tool Technology Program

Nicholas J. Anastasiow

The proposed study was introduced to evaluate the tool technology program developed by Anastasiow and Friedlein. Over a six-week period EIP kindergarten children were presented a science unit on simple machines to motivate them to construct some simple objects by using tools. This was coordinated with other activities in the classroom, such as the building of a complex bird feeder to put in the yard.

Pre-tests were given in the area of abstract reasoning, non-verbal association, and spacial relations. At the end of the six-week period a post-test was given and the results were analyzed to see if children in the tool technology program had made a significant gain, compared with the other children in the first grade who had the program without the tools.

The data indicated the kindergarten children had higher mean scores on naming tools, on describing functions of tools, and in effective use of the tools.

- an EIP Publication

A Comparison of Didactic, Guided Discovery and Discovery Teaching of Mathematical Concepts to Kindergarten Children

Nicholas J. Anastasiow, Teresa M. Leonhardt
and Sally A. Sibley

Utilizing the theoretical approaches of Bruner and Ausubel, a test of the efficiency of discovery learning techniques in teaching mathematical concepts to kindergarten children was conducted. Three kindergarten classes were identified and children were randomly assigned to three treatment groups: didactic, guided discovery, and discovery teaching. Pre-tests on the Peabody Vocabulary Test and Mathematical Concepts Test indicated no statistical significance among the groups. Three teachers participated in the study. Teachers taught each of the conditions to the three groups and rotated among groups approximately every eight days. Following approximately three weeks of teaching the children completed the material at their own independent rates.

Analyses of data support the contention that whereas groups taught by didactic teaching techniques have fewer errors than the two discovery groups, the discovery groups had fewer errors while working independently.

- an EIP Publication

Introduction of Geometric Concepts and a Reinforcement System to Culturally Disadvantaged Kindergarten Children

Patricia Barton, Martha Abbott, Sally A. Sibley and Betty Cooper

Twenty-two children in an EIP kindergarten were instructed in pre-number concepts through the use of geometric forms over a period of eight weeks. A geometric inventory was devised and administered to the children prior to the introductory material and after completion of prescribed workbook material. Negro and white children of both sexes attended one of two groups, each of which was divided into an average and a low group, classified on the basis of the Stanford-Binet and the pretest. Each group received 25 minutes of instruction per school day for eight weeks. One teacher, assisted by a research technician, instructed the four groups daily. Over the eight-week period, the afternoon group received individual reward in the form of token reinforcement for correct responses in their workbooks. Tokens were exchangeable for a toy preselected by the child. At the beginning of the seventh week, the morning group was switched to a reward system identical to that of the afternoon group. At the completion of the study, each child was administered a post-test, and an evaluation was made of the gain from pre- to post-test examination. Achievement results are presented in the table below. Other results indicate that although tokens did not lead to greater math achievement, they did lead to greater preference for math activities and greater motivation to perform the activities (Table 7).

TABLE 7

Geometric Achievement Tests (47 Questions)

	Group	Pre-Test	Post-Test	d	t
1 Week	Low	17.00	34.75	17.75	71.00*
Reward	Average	26.00	37.83	12.50	5.93*
2 Weeks	Low	22.65	36.33	13.67	8.88*
Reward	Average	26.67	38.67	12.00	14.02*

* = $p < .01$

Linguistic Reading in Negro First Graders

Nicholas J. Anastasiow

Many new reading programs use a linguistical process-oriented approach to teaching initial reading. Although these linguistic-based programs differ from each other, there are marked differences between them and the more traditional reading programs.

The linguistic approach is based on criteria involving the structural nature of the phonological, syntactical systems of English, while the conventional programs evoke the criteria of word frequency, experiential familiarity and demonstrability, and story content. In the Education Improvement Program, the Words in Color approach and the Sullivan Programmed Reading Material fall within the linguistic approach.

One of the problems of evaluating a linguistically oriented program is arriving at a suitable criterion measure. Most of the standardized reading achievement tests do not measure the linguistic competencies that the new program is trying to teach.

A test designed by Nicholas J. Anastasiow, EIP Program Director, and Duncan Hansen of Florida State University, has been developed and tried with lower and middle class children over a two-year period. ("Criteria for Linguistic Reading Programs," Elementary English, March, 1967.)

This test was used with EIP children and a control group as a means of assessing achievement. The test has a test-retest reliability of .94 and a split-half reliability of .97. It correlates sufficiently high with

other reading tests to indicate that it is measuring the same factors as the traditional measures.

An analysis of the results of the study showed that EIP first grade girls had a mean of 30.15 and a control group of girls a mean of 19.25, a significant difference at the .05 level. There were no significant differences between the control group boys and the EIP boys, although the mean for the control group was higher (20.07 compared to 16.55). Comparing the EIP total group with a group of lower class California Negroes, the EIP group had significantly higher means on the total score (EIP, 23.92; California group, 16.98; p.01). In addition to the difference between the means, there was also significant difference in the variability among the groups. There was greater variability in the EIP than in the control group, significant at the .01 level, and a greater variability than in the California group, significant at the .05 level. This would indicate that some EIP children are learning at a more rapid rate than children within the other two groups. These results can be interpreted to indicate that in the EIP program more attention was given to meeting individual differences in reading instruction and plans for acceleration than in the other two groups.

In analyzing the scores of children within the three Durham classes scoring at each particular level, it was noted that the three groups (two EIP and one control) had very similar numbers of children in the class who received lower scores. At the upper end of the distribution a greater percentage of children within the Negro EIP class attained high scores than did the children in the other two classes involved in this study. This finding was supported by the increased variance scores reported earlier.

In summary, there was an indication that the EIP girls had made greater gains than a control group of girls and also, as a total class, the EIP group made greater gains than the California group.

- an EIP Publication (abstract only)

PARENT-CHILD STUDIES

Group Member Evaluations of Program Activities

Frederica Harrison

During the summer of 1968, a five-week Parent-Child Center was conducted with a group of 13 mothers and their pre-school children. The group was composed of individuals with very limited socio-economic and cultural resources. Therefore, the Center program was designed to offer beneficial educational and recreational experiences. Previous social work experience with similar groups in the Education Improvement Program provided a base line of understanding regarding the interests and needs of this group. These earlier experiences provided direction for planning the present program.

Two objectives influenced the decisions regarding selection of program activities for the Center. They were the need to make group members aware of the availability of valuable resources within their community, and the need to encourage group members to use these resources. The program was composed of familiar (i.e., sewing) and unfamiliar (i.e., visiting art museums) activities. Resource people and facilities were voluntary and without cost.

An attempt was made to acquire data regarding group member reactions to all of the activities. These data were used for the total evaluation of the program, and hopefully could become a source of direction for future social work group programs. To acquire these data an inventory

was developed to sample group member opinions about the 22 activities and experiences that comprised the total program. Each program activity could be ranked - (1) very good, (2) good, (3) fair, and (4) poor. Interviews were held to provide the opportunity for administration of the inventory one month after the program ended. An analysis of their responses demonstrated the program activities that were most favorable to the group and those that were least favorable. Generally, their responses suggested that they were reluctant to rank the activities as poor (category 4). Therefore, categories 1 and 2 were combined, as were categories 3 and 4.

On the basis of the analysis of two categories, four general conclusions were made. They were as follows:

1) Activities that were least familiar were least appreciated by the group.
2) Activities that placed participants in the position where they might perceive of themselves in a negative way were least appreciated.
3) Activities that were familiar to the group members were most appreciated.
4) Activities that were high in their potential for rewards were most appreciated.

The program was rated successful on the basis that there were more positive responses to program activities than there were negative responses.

- an EIP Publication

A Parent-Child Center: Fall 1968

Frederica Harrison and Ann Thogerson

The Parent-Child Center was a five-week exploratory pilot study which involved 10 culturally disadvantaged unwed mothers and their two-year-old children. The purpose was to acquire information regarding the establishment of an educational enrichment program for mothers and children. Three assumptions were made: there would be an available pool of unwed mothers and children from which to select participants; the poor and limited resources of unwed mothers limit their ability to attend to the cognitive development of their children; programs which focus on the development of poor children should also provide opportunities for their parents to engage in personally relevant learning experiences.

The aim of the Parent-Child Center program was to have mothers replicate activities learned at the Center and experiment with new ideas in their homes. The Parent-Child Center was operated three days a week for three hours a day. Separate sessions were held for mothers and children. The children's program was planned to stimulate perceptual, conceptual and language development. For mothers, there were two sessions each day: 1) Demonstration and discussion by a preschool teacher of activities and techniques for stimulating their children, and 2) Participant chosen sewing and cooking lessons taught by a home economist.

The first assumption proved incorrect. Although 60 unwed mothers were referred, recruitment activities showed that they were not generally

available to participate in a program with regularity because of part-time employment, attempts to find employment, poor health, training programs, infant child care, or disinterest and inability to meet conditions for participation. With the identification of 10 mothers and their children the pool of subjects was exhausted. Average attendance for the mothers was 4 per day due to changes in work schedules, illnesses of children, acquired employment or lack of interest.

Mothers reported that they had followed up with some of the Center activities and that the children were eager to attend once they became familiar with the setting. The response to the adult focused program was good.

A number of objective evaluations were utilized to provide knowledge about the participants. A modified version of the Peabody Picture Vocabulary Test was given to the children as a pretest measure but was too difficult for most children. The Environmental Participation Index suggested that the adults were below average in their experience with cultural activities. The Caldwell Inventory of Home Stimulation suggested that the homes of the children were below average in climates considered conducive to learning.

Thus the results of this study suggest that unwed mothers of preschool children in Durham, North Carolina might not participate in a parent-child center with regularity, especially if it is located in an unfamiliar area of the city. Those who do participate will have sporadic attendance due to the conditions with which most poor people contend. Educational and social handicaps should be anticipated and dealt with. Evaluation measures will provide general information about the subjects but program planning should allow for a wide range of individual abilities and interests and take into account how these participants cope with new and unfamiliar situations.

A Token Economy Used in a Research Project with Mothers from Culturally Deprived Environments

Frederica Harrison and Barbara H. Wasik

A motivational system using a token economy program was employed to influence the attendance of 15 women who were participants in a five-week Parent-Child Center. The purpose of the Center was to provide educational and recreational experiences for this group of mothers and their pre-school children. Earlier attendance difficulties with groups not accustomed to participating in such programs directed the investigators to devise a means of increasing the frequency of attendance. The application of a token economy was considered appropriate to this problem. A token economy is founded upon the reinforcement theory of operant conditioning, the basic principle of which is that behavior is altered by its consequences. When the consequences of behavior bring about an increase in frequency of that behavior, then these consequences are seen as rewarding or reinforcing. Thus, to alter attendance, desirable consequences were made contingent upon attendance.

In a token economy system, tokens are given for a specified behavior and the tokens are later exchangeable for attractive, reinforcing items. Prior to becoming involved in the Center, group members were asked to name certain items between the price range of $.50 and $5 that they would like to have. A list was made of their choices and was the basis for th

selection of items to be exchanged for tokens. Selected categories were household, children, personal, and recreational items. A token was defined as the point acquired each day a group member was in attendance. Additional points would be acquired if the staff requested assistance with the children and a group member volunteered. Points or tokens were exchanged at the discretion of the group members. To study the effectiveness of the token system in the 1968 program, a comparison was made with the attendance in a 1967 program, in which a lottery system was used to affect attendance. The average percentage of meetings attended by the 1967 members was 40% while for the 1968 members it was 61%. A Mann-Whitney U Test was performed to test the significance of the difference between the two samples. (Siegel, 1956, pp 116 - 126) The resultant Mann-Whitney U was significant ($p = .0735$, one-tailed test).

A Mothers' Summer Workshop

June 14 - July 20, 1967

Frederica Harrison and Judith Lewis

This article describes a workshop conducted with a small group of culturally disadvantaged mothers. The purpose of the workshop was to help the participants learn how to develop and improve home learning opportunities for their pre-school children. Thirteen mothers and their pre-school children participated. The workshop was conducted by two social workers and a pre-school teacher. At times the children participated with their mothers in teacher guided experiences. At other times they were engaged in pre-school activities independently of their mothers.

The major goal of the program was to have mothers use at home the activities they had learned and practiced during the workshop.

The paper describes the experiences of the staff in attracting and reinforcing participation, responses of the mothers to the program, and the results of a follow-up study one month after the workshop ended. Attendance problems led to the use of a lottery system to reinforce attendance. After the system was introduced attendance improved from 30% to 51%. Problems encountered in the use of this system are discussed.

Participant response to the program was monitored and data were collected using an event recorder. Data were collected on the rate

of voluntary versus invited participation by group members. Data analysis showed a greater amount of voluntary participation by the group when discussing child rearing principles and practices in contrast to activities designed to improve their teaching skills.

A questionnaire used in the follow-up study indicated that eight out of thirteen mothers had involved 25 different children in the activities they had become familiar with. Five reported not to have used any at home.

EIP YOUTH PROGRAM

A Socio-demographic Study of Pregnant School Girls Referred to the Cooperative Project

Maurine LaBarre

Pregnancy is the largest single cause of dropouts among female secondary school students in the United States. No statistics have been available in the community on the number of such dropouts, but exploratory studies of teenage prenatal clinic patients and conferences with school principals indicate that a sizable group of girls leave school each year for this reason.

A pilot project offering continuing education and health and social services was developed by the Durham Community Planning Council, and supported by EIP, the Durham Child Guidance Clinic and local civic clubs. It was approved by the Durham City Board of Education and operated during 1967-69. Referrals were invited from county and city schools, health and social agencies. Between September and May, 60 girls were referred; discussions were conducted with the referral source and confidential home visits offered to explore the needs of the girls and tc offer counseling. Interview data were recorded on a research schedule and analyses were made of the age, race, grade level and school attended; marital status, age, education and occupation of the putative father; education and occupation of the girl's parents; and medical care received.

Data show an 11 to 19 years age range; a grade level range from sixth to twelfth; and a wide range of socio-economic-educational status

of the families. The need for motivation of these girls for continuing education, family, health and vocational rehabilitation counseling is documented. The data obtained were useful to the school systems and Planning Council, and supported an application made by the City Schools for Federal funds under Title III, ESEA. A three-year demonstration Title III project was secured in the summer of 1968.

The Attitudes of Disadvantaged Youth

Howard Lee, Anne Funderburk, Teresa Leonhardt,

Maurine LaBarre and Clyde Penny

This project spent considerable time and effort on methodology and procedures needed to provide an interview schedule capable of extracting useful information concerning attitudes, aspirations, and goals from disadvantaged youth. A series of structured interviews were developed for administration to EIP Youth Program membership to establish initial data on these dimensions so important to adult adjustment.

- an EIP Publication (abstract only)

Narrative Description of the Social Development of Two-Year-Olds in the EIP Nursery

Maurine LaBarre, Else Hjerholm and Donald J. Stedman

Nine young children between 21 and 24 months of age who had been members of an Infant Evaluation Project, were recruited for an EIP nursery group in September 1967. Data from pediatric, anthropometric, tactile, visual and motor evaluations of these infants throughout the first two years of their lives, PAR studies prior to admission to the nursery, and re-evaluations during and at the end of the school year were acquired. In addition to this research data, observations on the social behavior and development of the children individually and as a group were recorded during weekly conferences of the pre-school supervisor, teachers, teacher aide and family social worker. Special attention was given to the initial reactions of the children to the nursery situation, their adjustment to separation from mothers, relations with individual staff members and the other children; their reactions to nursery routines and use of play materials; the development of motor skills and language; individual, parallel and cooperative play; spontaneous expressions of aggression, fighting, friendliness and sharing with peers; fluctuations in attentiveness, responsiveness, fatigue and "emotional moods" and their relation to health, changes in family situations, visitors, modifications in nursery routines, and the like. From these observations, some tentative generalizations about "two-year-olds" in a nursery were offered.

Suggestions were made regarding collaborative work of teachers, parents and the family social worker in facilitating the adjustment of the child to the situation and the group; understanding and handling special needs of individual children; balancing stimulation and "recovery" periods of rest,and solitary play and group engagement.

- an EIP Publication

An Approach to the Study of Infant Behavior

Donald J. Stedman

This is a report of an observational study of the development of infants, a suggestion for a theoretical model, a developmental matrix derived from ovservations using the model, and guides for specific instrumentation for infant observation, coupled with an experimental/stimulating responsive environment for infants.

The proposed theoretical model is an expansion of the psycholinguistic model put forth by Kirk and McCarthy (1961) and is seen as a potentially useful research model upon which conceptualizations concerning infant behavior can be developed and from which research hypotheses may be generated for test.

Using this model a sensory learning hypothesis (TABLE 6) was derived from systematic observation of apparent decoding behavior, an analysis of infant developmental schedules, and data from the literature on infant maturation. A design for responsive environments for systematic provision of visual, auditory, and tactual imputs and the monitoring of vocal, motor and organic outputs was suggested.

The focus of the study and presentation was directed toward the areas of infant behavioral studies and the application of stimulation programs to infants with decelerating growth patterns, a phenomenon noted with great frequency among the disadvantaged population.

TABLE 6

Sensory Learning Hypothesis

		Age				
	Rank	30 Days	60 Days	90 Days	180 Days	6 Years
Modal Primacy	1	Tactual	T	V	V	V
	2	Auditory	V	A	A	A
	3	Visual	A	T	T	T

Developmental-Behavioral Patterns of Twenty-six Culturally Disadvantaged Infants

Donald J. Stedman, Patricia Jones, Barbara Kerton, Maurine LaBarre
Tempa Pickard, Lorette Powell, and Judy Simpson

This is an interim report on the development-behavioral patterns of 26 infants (14 boys and 12 girls) of the 36 culturally disadvantaged infants being followed in the longitudinal study of the Infant Evaluation Project.

Each child was evaluated individually in the presence of his mother at one, two, three and six months of age, using the Bayley Scale of Infant Mental and Motor Development and its Infant Behavior Profile. Developmental Intelligence Quotients (DIQ), Developmental Motor Quotients (DMQ), and Behavior Profile scores were derived at a point within five days of the monthly birth date of the infant at each of the four month levels by the same evaluator. The Infant Behavior Profiles were accomplished as a pooled judgement by the evaluator assigned to the infant and an observer who witnesses the evaluation of mental and motor skills through a one-way glass.

Since infants enter the study at different intervals, six month data are reported on 22 of the 26 infants, three month data on 25 of the 26, two month data on 25 of the 26, and one month data on all 26.

Table 2 indicates the Mean DIQ's for the number of infants indicated at each month level and sex group. Table 3 includes the Mean DMQ data.

TABLE 2

Mean DIQ Data of Twenty-Six Infants

by Sex and Age at Evaluation

	Age at Evaluation			
	1 Month	2 Months	3 Months	6 Months
Boys	108	113	109	102
(N)	(14)	(13)	(13)	(11)
Girls	97	113	114	110
(N)	(12)	(12)	(12)	(11)
Boys and Girls	104	113	112	106
(N)	(26)	(25)	(25)	(22)

TABLE 3

Mean DMQ Data of Twenty-Six Infants

by Sex and Age at Evaluation

	Age at Evaluation			
	1 Month	2 Months	3 Months	6 Months
Boys	117	121	113	108
(N)	(14)	(13)	(13)	(11)
Girls	117	115	113	104
(N)	(12)	(12)	(12)	(11)
Boys and Girls	117	118	113	106
(N)	(26)	(25)	(25)	(22)

It is interesting to note that the boys start out at a relatively higher level compared to the mean DIQ of 100 and, after a short spurt at the second month level, drop near the mean by the sixth month evaluation. The girls, on the other hand, start below the mean at 97 and move quickly at the second month evaluation into a position approximately one standard deviation above the mean. They hold that position through the sixth month evaluation.

DMQ data suggests that both boys and girls start out considerably above the mean of the standardization sample and drop toward the mean as age progresses. There is a slight increase from the first to the second month for the boys but it joins the level of the girls' performance by the third month. By the sixth month these infants are approaching the mean of the distribution. The boys appear to be slightly more active and are more productive on the motor scales, while the girls are more productive and appear to be more capapble on the developmental intelligence scales.

A review of the Behavior Profile data suggests that there is an increase across the first six month life span in response to objects, goal directedness, persistence, cooperativeness, happiness, endurance, looking, listening, banging with the hands, manipulation, and mouthing. The areas in which decreases take place across the six-month period are energy level, tension, fearfulness, vocalization, and body motion.

The data indicated average to above average mental and motor quotients and "normal" early behavioral patterns. Since older disadvantage children perform at subnormal levels on standardized tests, it was noted that these data may serve to "bracket" the second and third years of life as critical to the development of patterns related to intellectual development.

Thirty-six Infants in Poverty

Donald J. Stedman, Maurine LaBarre, Lorette Powell

Judy Simpson, Barbara Kerton, Tempa Pickard and Patricia Jones

This is a comprehensive description of home situations, family conditions, developmental data, and vignettes from social work visistations accumulated on the 36 families who have infants in the longitudinal Infant Evaluation Program.

It provides fuller insight into the social and familial factors surrounding the early developmental life space of the infants under surveillance. Similarities and differences are drawn between white and Negro families, between rural and urban families and their living patterns, and between large and small families. Particular reference is made to the relatively high achievement motivations that the majority of these families have for their children.

- an EIP Publication (abstract only)

TEST EVALUATION

Changes in the IQ of EIP Subjects as a Function of Test Sequence

William Katzenmeyer and Teresa M. Leonhardt

While setting up pairs of IQ scores on EIP subjects for covariance analysis, a pattern of gains and losses from one test period to another was discovered. Frequency counts of gains and losses for each pair of scores in the several planned covariance analyses indicated an effect determined by the IQ test rather than by the time periods. The analyses used combinations of three tests - Stanford-Binet, WPPSI and WISC. The following table shows the tests which were compared and the number of drops, gains, or lack of change in IQ from first to second testing.

First Test	Second Test	Number of Comparisons	Gains	Change	Losses
S-B	S-B	59	45	0	14
S-B	WISC	55	44	5	6
S-B	WPPSI	45	7	0	38
WPPSI	WPPSI	22	11	1	10
WPPSI	WISC	12	11	1	0
WISC	WISC	19	15	0	4

The general trend of the results are gains in IQ regardless of which two tests are compared except for the Binet to WPPSI comparison. Out of 45 subjects who were given the Stanford-Binet and were retested with the

WPPSI one or two years later, 38 subjects scored lower on the WPPSI than on their initial Binet.

- an EIP Publication

A Comparative Study of the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) and the Wechsler Intelligence Scale for Children (WISC) for Culturally Deprived Children

John L. Wasik and Barbara H. Wasik

The Wechsler Preschool and Primary Scale of Intelligence (WPPSI) was developed to meet the need for a measure of intellectual functioning that extends below the age range of the Wechsler Intelligence Scale for Children (WISC). According to Wechsler, the WPPSI is an extension of the WISC. However, he reports no comparable results for the use of the WPPSI and WISC with the same sample of children.

It was the purpose of this study to test the hypothesis that there would be no significant difference in Verbal IQ, Performance IQ, and Full Scale IQ scores on the WPPSI and WISC tests for the age overlap of 6 to 6½ years.

Data used for the study were combined for two EIP groups. One group of 36 students took the WISC at the end of a year in kindergarten and took the WPPSI three months later upon entry into first grade. A second group of 20 children was given the WPPSI as part of a follow-up evaluation of an experimental kindergarten and three weeks later received the WISC for comparison purposes.

The results of a Latin Square analysis indicated that there were no significant differences in any of the three IQ measures for the effects of time taken or order of test administration (i.e., WISC-WPPSI versus

WPPSI-WISC). However, the effects of the test itself were highly significant in favor of the WISC for each of the three types of IQ comparisons. The WISC IQ means were found to be significantly higher in all WPPSI-WISC IQ comparisons. No significant differences were obtained for race or sex.

Based upon the results of the above analysis and of other comparisons made in this study, the authors caution researchers against interchanging these two tests when evaluating the effects of an intervention program.

- an EIP Publication

A Comparison of WPPSI and WISC IQ Tests Factor Structures for Culturally Different Children

John L. Wasik and Barbara H. Wasik

The primary purpose of this study was to determine similarity of WPPSI and WISC factor structures obtained for a group of culturally disadvantaged children. A second interest was in determining whether or not factor structures of WPPSI and WISC are stable across socio-economic levels.

The WPPSI and WISC subtest scale scores of 50 six-year-old culturally disadvantaged children were factor analyzed, separately, by the principal components procedure. Orthogonal rotation to the Varimax Criterion was carried out for analysis. The principal components analysis yielded three factor solutions for both the WPPSI and WISC subtests. However, the solutions were markedly different. Inspection of the WPPSI rotated factor structure indicated the presence of a verbal factor of five subtests, a performance factor of four subtests and a specific factor related to performance on the animal house subtest. A less clear factor structure was gained from the WISC analysis. The factors were identified as 1) performance - which included four variables; 2) verbal - which included three variables; and 3) a combination of verbal and performance. The different patterns obtained suggested that the two tests were measuring somewhat different abilities.

Utilizing a canonical analysis procedure, it was determined that one significant relationship existed between the WPPSI and WISC factor scores. The same results were obtained for the two sets of factor scores computed by two alternate methods. Both analyses demonstrated that the WPPSI verbal factor contributed a great more weight to the observed relationship than did the other two calculated WPPSI factors; the three WISC factors contributed approximately equal weights to the determination of the canonical relationship.

The final portion of the study was concerned with the determination of the dimensional similarity of the WPPSI and WISC across cultural levels. The correlation matrices reported in the WPPSI and WISC manuals for children nearest in age to the children in this study were factor analyzed by the principal components procedure. The resultant two factor solutions were rotated using the varimax criterion. Coefficients of congruence for the loadings of the rotated factor solution were calculated across the two samples for the WPPSI and WISC, independently.

Results indicate that the verbal and performance factors were highly similar in reference to patterns of factor loadings for the two WPPSI samples. Similar results were also noted for the verbal and performance factors identified in the two WISC samples. These results suggest the conclusion that factor structures obtained for a culturally disadvantaged group and a representative normal group are factorially invariant (i.e., factors are the same).

Results of the cross scale comparisons of the dimensions of the WPPSI and the WISC suggest the two scales are measuring somewhat different abilities. The single significant canonical correlation obtained suggests an overall intellectual status measure such as provided by Full Scale IQ will likely lead to similar results in terms of group reference no matter which scale is used.

An Investigation of the Reliability and Validity of Two Social Maturity Scales for Preschool Children

John L. Wasik and Barbara H. Wasik

The observed low level of academic achievement of culturally deprived children has been ascribed by some to social immaturity upon entrance into the elementary school. It has been further suggested that preschool programs should attempt to upgrade the social skills of culturally disadvantaged children prior to their entrance into first grade. Thus, there is a need for an instrument which will accurately measure social behavior and which can be easily administered and scored. The purpose of this study was to investigate the reliability and validity of the Behavioral Maturity Scale (BMS) an instrument which meets the above criteria of ease of administration and scoring.

The BMS provides separate scale scores for Academic Maturity, Interpersonal Maturity and Emotional Maturity of a child. To determine the reliability of the BMS, teachers and teacher aides from three preschool classrooms independently completed a BMS for each child in their classroom. At this time the teachers also completed another measure of social maturity, the Preschool Attainment Record (PAR), for each child. Two weeks later, the teachers and teacher aides again completed a BMS for each child in their classrooms.

Median reliability estimates over classrooms and BMS scales were obtained using procedures developed by Linquist. The following estimates of reliability were obtained: 1) .952 for three teachers in a classroom over two observations; 2) .870 for three teachers in a classroom for one observation; 3) .754 for one teacher over two observations; and 4) .801 for one teacher over one observation.

The reliability estimates obtained are quite substantial leading to the conclusion that the BMS can give stable estimates of reliability over time. As would be expected, the reliability estimates are a function of the number of observations and observers (i.e., teachers) making the observations.

The data also indicated that the reliability obtained for each scale differed systematically. To test this observation, an analysis of variance was used with the classrooms and scales serving as levels in a crossed two factor design for each of four types of reliability studied. For the reliability of all teachers over two observations, all teachers for one observation, and one teacher over two observations, it was found that a linear trend existed between the reliability estimates for the three scales; the Academic Maturity ratings were found to be the most inconsistent and the Emotional Maturity ratings were found to be the most consistent. This was a surprising find since most researchers feel it is most difficult to get accurate measures of emotional traits.

The final portion of the study was concerned with ascertaining the validity of the BMS. A canonical correlational analysis carried out to determine the relationships between the BMS and the PAR suggested that the two instruments are providing similar estimates of social maturity.

- an EIP Publication

A Word of Caution on the Use of the WPPSI in the Evaluation of Intervention Programs

John L. Wasik and Barbara H. Wasik

A study of the test-retest data utilized to provide stability estimates of the WPPSI (Wechsler, 1967, p.33) showed a consistent positive gain in performance from the first to second testings. Test of significance on the individual tests indicated that a positive gain could be demonstrated for nine of the fourteen test-retest comparison. A discussion was presented of the difficulty of interpreting gains on the WPPSI should the scale be used to demonstrate the effectiveness of preschool intervention programs. A procedure was presented that would allow true estimates of the effectiveness of intervention programs when the WPPSI is used as the evaluative measure.

- an EIP Publication

A Comparison of Parent and Teacher Ratings on the Preschool Attainment Record of 17 Six-Year-Old Disadvantaged Children

Donald J. Stedman, Miriam Clifford and Anne Spitznagel

Seventeen six-year-old boys and girls of average intelligence were evaluated via the Preschool Attainment Record by both mother and teacher. A comparison of attainment quotients suggested a significant discrepancy between parents and teachers on boys' developmental levels (parents scoring boys higher than teachers do), but no differences were found in judgements of girls' developmental levels. It was suggested that the reasons for disagreement between parents and teachers on boys' attainment should be pursued with particular attention paid to the areas of rapport, manipulation, communication and creativity, which seem to be the areas in which parents and teachers disagree most in their evaluation of boys' developmental levels.

- an EIP Publication

A Factor Analytic Study of the Performance of 340 Disadvantaged Children on the Illinois Test of Psycholinguistic Abilities

Donald S. Leventhal and Donald J. Stedman

The Illinois Test of Psycholinguistic Abilities was administered to 340 six-year-old children who were enrolled in a pre-kindergarten Head Start program in a North Carolina community. Children ranged in age from 5 years, 8 months to 7 years, 9 months with a mean age of 6 years, 4 months at the time of testing. There were 180 boys and 160 girls, of which 27 boys and 28 girls were Negro.

Analysis of variance of the ITPA subtest scores indicated significant differences in favor of the white childre over the Negro children on all nine subtests of the ITPA. The Negro children were particularly deficient on those subtests requiring language and less deficient on those tests of perceptual or nonsymbolic nature. Factor analyses were accomplished within each racial sub-group in an effort to take a closer look at intragroup differences in subtest responses. In addition, factor analyses were accomplished on the inter-correlations between the ITPA subtest raw scores for both Negro and white samples.

Contrary to the previous indication that the ITPA was designed to provide independent estimates of a child's level of functioning in each of the nine abilities addressed, the factor analyses in this study cast doubt upon the independence of the abilities assessed. Specific likenesses and differences

between encoding and decoding abilities within and between Negro and white child groups were presented and discussed.

- an EIP Publication

Cooperation of Disadvantaged Negro Adolescents in a Mixed-motive Game as a Function of Sex and Partner's Level of Cooperation

Sally A. Sibley, Teresa M. Leonhardt, and Ellen F. Elsas

Twenty Negro adolescents were the subjects of a second and a third investigation of the Prisoner's Dilemma game. In a previous investigation, it had been found that Negro girls and boys were equally cooperative when playing the game in like-sexed dyads, but both were less cooperative when playing with a white partner.

The second investigation was undertaken to replicate the first study in part and to discover if the adolescents were more or less cooperative when playing with a partner of the opposite sex. Again, there were no significant differences in cooperation between males and females when they played with a partner of the same sex. When playing with a partner of the opposite sex, both males and females tended to be more cooperative, but this effect was not significant.

The purpose of the third study in the series was to discover the level of cooperation of the subjects when playing a very cooperative or a very competitive partner. Although the subjects were told they were playing each other, they were in actuality playing an electronically predetermined sequence. The "cooperative partner" cooperated on 82% of the 50 trials, while the "competitive partner" cooperated on only 12% of the

trials. These games were played with like-sexed partners and the regular like-sexed game served as a control.

The subjects were most cooperative when playing a regular game. They were least cooperative when playing a "cooperative partner." In other words, they took advantage of the high level of cooperation to profit from it. When playing the "competitive partner," the subjects tended to be more cooperative than with the "cooperative partner," but less than when playing a non-predetermined game.

- an EIP Publication

Race and Sex of Disadvantaged Adolescents and Cooperation in a Mixed-Motive Game

Sally A. Sibley, Kathy Senn and Alex Epanchin

In any social setting, demands are constantly placed upon an individual to produce cooperative and competitive behaviors. To study the complex of behaviors called cooperation in a natural setting is extremely difficult. A popular solution is to place subjects into a game situation, but few studies have investigated children's responses to competitive games.

In the present study, the cooperative behavior of 24 economically deprived junior-high school pupils was compared within the context of a "Prisoner's Dilemma" game. By definition, a "Prisoner's Dilemma" game provides that if both subjects cooperate, they both gain moderately, but if they compete, one subject gains extensively, while the other subject loses or they both lose moderately.

The three independent variables were race of the subject, sex of the dyad, and race of the partner. The dependent measure was the number of cooperative responses made by each subject.

The subjects played the game in dyads visually separated from each other. Each subject had two levers (A & B), a ready light and four outcome lights before him. A trial consisted of the ready light and each subject's lever press followed by the appropriate outcome light.

There are four possible outcome combinations - both subjects cooperate (AA), only one subject cooperates (AB, BA), or neither subject cooperates (BB). The payoff matrix provided 5 points each when both subjects cooperated; when only one subject cooperated, he lost 10 points, while the competitive subject gained 10 points; when neither subject cooperated both subjects lost 5 points. The points were non-cumulative and the outcomes were recorded on counters in the experimenter's room.

Each subject played the game twice, always with a partner of the same sex, but once with a member of the same race and once with all of the other race. Each game consisted of 50 trials. Sequence of racial make-up of the dyads was counter-balanced so that one-half of the subjects played the game with a partner of the same race first while the other half played with one of the other race first.

A 2 x 2 x 2 (race, sex, race of partner) analysis of variance with repeated measures on the last variable revealed several significant results. Sex functioned as a major significant ($p < .05$) variable in that the female subjects produced more cooperative responses than the male subjects. When the significant ($p < .05$) race x sex interaction is taken into consideration, however, it is obvious that Negro males and females do not differ from each other in cooperative responses. The significant sex effect is due entirely to the large difference between white males and females with female white subjects being the more cooperative. These results are limited by the fact that within each dyad sex was held constant. Therefore, when playing the game with a number of the same sex, white females are more trusting and cooperative than white males facing other males. This difference did not hold at all for

Negro males versus Negro females.

An additional significant ($p < .05$) effect was that of the partner's race in combination with the subject's race. Subjects of both races and sexes produced significantly more cooperative responses when playing with a partner of the same race rather than of the other race.

It would be pretentious to suppose that a subject's performance on a laboratory game is perfectly related to patterns of cooperation and trust in a naturalistic setting. The results of this study do, however, represent some differences which may illustrate useful relationships between the sexes and races as they cooperate and compete.

- an EIP Publication

Teacher and Pupil Social Preferences

Sally A. Sibley and Frances M. Owens

Thirty-eight first and second year students in an ungraded primary group were administered a series of sociometric questions concerning their peers and their teachers. The six teachers and two teacher aides were administered a similar series of questions concerning their preferences.

Only some of the very interesting findings can be reported here. In neither of these two integrated groups was popularity related to skin shade (light to dark) within the total group or within the Negro group. Rejection (not merely lack of popularity) was related to skin shade among the total second year group (-.43) and with the Negroes in the first year group (-.82) in that the darkest children were the most rejected. There were no significant race differences in popularity or rejection.

Males were less popular and more rejected than females. Popularity and rejection were negatively correlated to a highly significant degree.

Popularity was significantly related to both intelligence (+.65) and reading achievement (+.77) in the first year group, but to neither of these indices in the second year group. Popularity was not related to ordinal position among siblings. Among the first year pupils, their family structure was significantly related to their popularity with children with both parents at home being higher in popularity. This effect was not found in

the second year group. The relationship between a child's popularity and his skill rating by peers was positive in both groups (+.81, +.88).

Teachers of neither group showed any significant preferences for or rejection of either sex or race of pupil. On the other hand, Negro pupils showed preference (.01) for Negro peers, while white pupils preferred white peers. There were, of course, very notable exceptions to this trend, but on the whole the preferences were quite clear. Sex preferences were as expected with females clearly preferring females, and males preferring males, but less.

Teacher preferences and peer preferences were significantly related in both groups (+.72, +.64). The rejection of pupils was less correlated between teachers and pupils (+.30, +.64). The children were able to predict the social status of other children with teachers and peers very accurately. The correlations between popularity and the children's prediction of popularity were very significant (+.68, +.92). They were able to predict level of teacher preference (+.65, +.73) and teacher rejection (+.71), but in the latter case, only in the first year group. According to questions of their own popularity, the children were not able to predict their own popularity, but could predict the level of their own rejection by peers (+.39, +.47).

These results indicate that these children had a very high degree of awareness of the social preferences within their school groups. The relationships found are very important ones to consider in understanding and modifying the social structure of integrated groups of disadvantaged children.

Interpersonal Relations and Compatibility of Teaching Teams

Sally A. Sibley, Nicholas J. Anastasiow,
Teresa M. Leonhardt, and Barbara H. Wasik

The Fundamental Interpersonal Relations Orientation scale (FIRO-B, Schutz) was administered in several different forms to all teaching teams in EIP. This scale is being explored as a predictive compatibility measure. The six subscales are expressed- and wanted- degrees of inclusion, control, and affection.

Test/retest reliability from fall to spring of the three major subscales were +.76 for inclusion, +.56 for control, and +.52 for affection. Reliability for total team incompatibilities from fall to spring was +.67.

Mean scores of all teachers and teacher aides in the spring indicated that their highest subscale score was on expressed-inclusion, followed by wanted-control. The lowest scores were on expressed-control and wanted-inclusion. The greatest variation was within wanted-inclusion with the least variation within expressed-inclusion. The differences (significant at the .10 level) between teachers and teacher aides were the greater expressed-inclusion and the less expressed-control of aides. There were three differences between Negro and white members of teams. Negro teachers and teachers aides scored less on expressed-inclusion (.05), wanted-inclusion (.05), and wanted-affection (.10).

The teachers completed the FIRO-B scale in two forms other than the regular one. They answered the questions as applied to their relationship with their pupils and as they predicted that their teammate answered for herself. The teachers pictured themselves as very different when relating to their pupils. Expressed-control was greater with pupils (.01) as would be predicted. Interestingly enough, there was absolutely no difference in wanted-control. Expressed- and wanted-affection were both significantly greater with students than with peers.

The Social Maturity of Disadvantaged Children

James J. Gallagher, Anne Funderburk and Teresa Leonhardt

This study explored the relationship between measured intelligence and social maturity in primary-aged, disadvantaged children. While general findings have shown relatively superior social maturity scores to general intelligence scores in these children, this study indicated that such results might be spurious and misleading. The children showed strong deficits in two specific areas of social maturity -- language development and freedom to explore environment. These results suggest the pattern of successes and failures in general social maturity scores has little meaning for educational and social planning.

- an EIP Special Study Publication

COGNITIVE CHARACTERISTICS

A Comparative Study of the Failure Avoidance in Culturally Disadvantaged and Un-Disadvantaged First Grade Children

Donald J. Stedman and Patricia G. Webbink

Twenty-four non-culturally disadvantaged and 20 culturally disadvantaged first grade children were given two puzzles to assemble under stress of time limit. The children were allowed to complete one puzzle successfully. Failure was induced by calling time before they completed the second. After an interim period, each child was asked to choose which of the puzzles he would like to repeat. As predicted, the disadvantaged children's repetition choice was significantly directed toward previously successful puzzles, demonstrating failure avoidance or low achievement motivation. Non-disadvantaged children did not select between uncompleted and completed above chance level, but chose the incompleted puzzles significantly more often and completed puzzles significantly less often than the disadvantaged children. This was interpreted as upholding the predicted success striving of the non-disadvantaged child as compared to the disadvantaged child.

The data were considered to have upheld the hypothesis generated concerning higher states of achievement motivation in non-disadvantaged children as compared to disadvantaged children. In addition, the capability of measurement of the achievement motivation state was thought to be demonstrated by means of a repetition choice task involving children's puzzles.

- an EIP Publication

Psycholinguistic Abilities of Culturally Deprived Children

Sheila Morrissey and Donald J. Stedman

Fourteen culturally deprived first graders (seven boys and seven girls) were evaluated with the Illinois Test of Psycholinguistic Abilities (ITPA) before and after their first eight months of school. The purpose of the study was to evaluate the stability of the ITPA over time, and its applicational merit with culturally deprived children.

Results indicated striking similarities in the children of responses during the two test administrations. ITPA profiles were nearly identical, showing significantly greater ability in the visual subtests than in the verbal. The mean language age increase was one year, six months. The data indicated that the ITPA is a reliable instrument for use with the culturally deprived child. It also suggested that the pattern of psycholinguistic skills and deficits is well established by school age and that it would be profitable for future research to direct itself to the possibilities of early intervention in order to prevent psycholinguistic handicaps.

- Senior Author's Masters Thesis
Department of Psychology
Duke University

Associative Clustering in Culturally Deprived and Non-Culturally Deprived Children

Lee Spence and Donald J. Stedman

This study was an extensive evaluation of associative clustering, perceptual sorting, sort naming, and concept naming behavior in 40 five- and six-year-old Negro children. Twenty were culturally deprived and 20 were not.

Results indicated a surprising degree of similarity between the two social classes in clustering behavior. It was apparent that the conceptual processes underlying associative clustering were similar in both groups of children evaluated.

There were, however, qualitative differences in the recall behaviors of the children such that hypotheses about class differences in concept storage and retrieval could be made. A comparison of the results of the main tests indicated that the degree of language involvement is a useful dimension in comparing disadvantaged and non-disadvantaged children. The tasks used required the child to produce verbal labels for concepts. Beyond this, the concept naming task appears to be the quickest and easiest to administer and provides the best single index of class membership. Results in this task clearly supported the conceptual deficiency of disadvantaged children in the abstract use of language.

Aside from a comprehensive investigation of the cognitive processes in disadvantaged children, the study developed an extensive presentation on the

variety of theories on language development, research on stimulus and language deprivation, social class difference in conceptual development, and a position statement on language and thought as related to disadvantaged children.

- Senior Author's Masters Thesis
Department of Psychology
Duke University

137.8

An Observational Comparison of the Language Development of Two Preschool Groups

Bonnie Rothman and Lloyd J. Borstelmann

In order to investigate the differences which might occur in language development as a result of manipulation of environmental variables, two groups of preschool children were selected for observation. An "advantaged" group of children was selected from the Duke Preschool Laboratory and a "disadvantaged" group of children was employed by utilizing an EIP kindergarten. Peabody Picture Vocabulary Test IQ scores in the advantaged group ranged from 117 to 142 with a Mean IQ of 130. Similar scores in the disadvantaged group ranged from 83 to 117 with a Mean IQ of 89.

Fifty unelicited and consecutive verbalizations were obtained from a sample of children in each group as a standard of actual comparison. Verbalizations were analyzed for correctness and completeness of word usage, mean length of the expression units, sentence completeness and sentence complexity. Verbalizations were also scanned for verbal richness - the use of varying tenses, adjectives, adverbs, possessives - and a category classified as "creative expressions".

A comparison of the analyses of the verbalizations indicated that the disadvantaged group constantly showed a greater frequency of errors than the advantaged group. Errors in the form of substitutions were not found in the language of the advantaged children. Omissions were noted in both groups. The most frequent distortion in the disadvantged group was the slurring

together of words into one unit or the employment of "giant words." The length of expression units was found to be longer in the advantaged group as compared to the disadvantaged group. Sentence complexity was greater in the advantaged group as was the frequency of the use of compund sentences. In the general category of "verbal richness" the advantaged group again held the advantage in all categories except "possessives" in which both groups were basically equal.

Response Strategies of Kindergarten Children from a Middle Class Environment

Barbara H. Wasik

Previous research with EIP children yielded data on their response strategies in a discrimination learning task. Some of the results were in conflict with previous research findings on children's response strategies, raising the question of whether the results obtained at EIP were in part a function of the children's low socio-economic status. For this reason additional testing was conducted with kindergarten children from an upper-middle class background.

The task presented to these children was that of selecting the correct stimulus when presented with a pair of stimuli. After five presentations, children received information on the correctness of their responses.

There were 12 strategies defined by position, color and size which the children could have used. The results obtained from these kindergarten children were more like those of the EIP second grade children than the EIP kindergarten children. These results suggest that a possible cultural difference may contribute to the disparity between these results. However, the data are inconclusive and additional research will have to be conducted to determine to what the obtained differences can be attributed.

A Comparison of Conservation Scores to Intelligence Scores and Chronological Age

Barbara H. Wasik

This study was conducted to assess the level of performance of EIP primary grade children on several tests of Piaget's concept of conservation. All first, second and third grade children - 119 in number - were administered the test. The test materials were those in the Concept Assessment Kit for Conservation developed by Marcel L. Goldschmid and Peter M. Bentler. The six areas of conservation which were tested were two-dimensional space, number, substance, continuous quantity, weight and discontinuous quantity. Both a behavioral and an explanation score were obtained.

A comparison of the total test scores obtained by EIP children with the norm data reported in the test manual indicated that EIP children at every age level from six to nine years lagged one to two years behind the norm data. From ages six to eight and a half, there was a steady increase in scores but the nine to nine and a half year-old children obtained lower scores than the preceding age groups. This is possibly a function of the fact that the children in this group were older and slower academically than others in their class.

A correlation analysis comparing chronological age and intelligence test scores (WISC) with the total conservation score yielded a correlation

of .51 for each variable. Hence, with the EIP population this particular test of conservation shows that relationships between conservation and the two variables of age and intelligence are of about the same magnitude.

- an EIP Publication

Response Strategies in a Concept Formation Task

Barbara Wasik, Kathy Senn, Frances McWhirter,

Jeanne Mason and Charleen Gorbet

Levine has developed a technique for determining response strategies with adults; this technique is particularly advantageous for use with children since a verbal response from the subject is not required to determine the strategy employed. A modification of Levine's technique has also been used with Canadian children by Rieber.

The purpose of this study was to ascertain strategy procedures in EIP children and to investigate grade, sex and race differences.

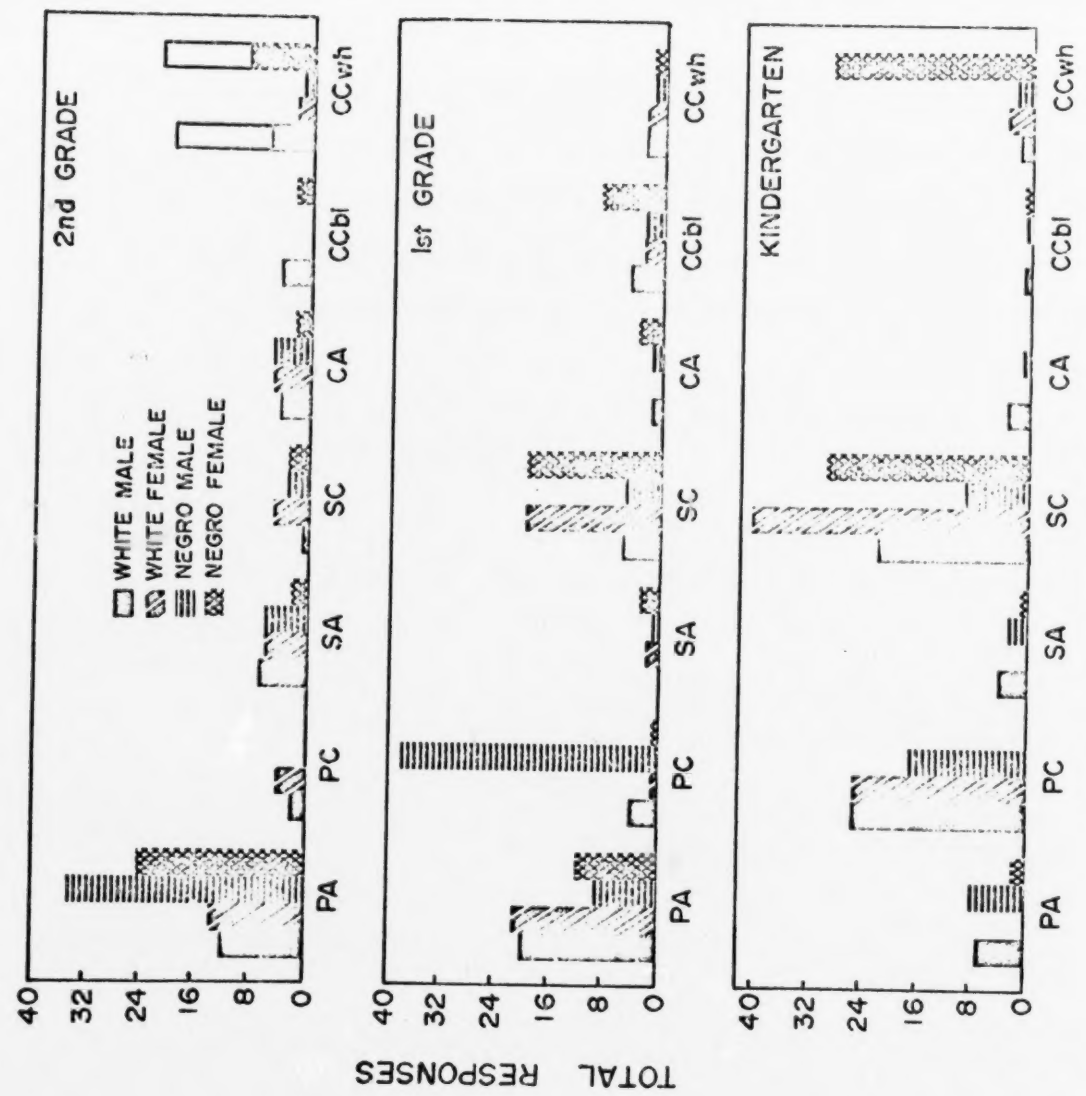
The materials consisted of eight trays with ten cubes in each tray, arranged in an array with five pairs. The visual stimuli on the cubes consisted of a large or small white circle or a large or small black circle. One of four concepts, white, black, large or small, was selected by the experimenter as the one to be reinforced, that is, one concept was the "correct" one. Placed beneath this "correct" stimulus was an M and M candy. The child was told by an experimenter that he was to choose one cube in each pair of cubes. After a child had made a choice in each pair on a tray, he could then lift up the cubes to see if he had received any candy.

The procedure the child followed was recorded. His choices were checked to see if they followed a random pattern or could be identified as one of six strategies. The strategies investigated were

the following: (1) position alternation (PA), (2) position constant (PC), (3) size alternation (SA), (4) size constant (SC), (5) color alternation (CN), (6) color constant (CC).

Chi-square analysis indicated that 11 of the 12 groups were selecting strategies at a rate greater than would be expected by chance alone. Results of an analysis of variance showed that for the total number of strategies used there were no significant differences across grade level, race, and sex. However, all strategies were not equally utilized and the groups differed in the number of times specific strategies were selected.

- an EIP Publication


2nd GRADE
1st GRADE
KINDERGARTEN
CCbl
CCwh
WHITE MALE
WHITE FEMALE
NEGRO MALE
NEGRO FEMALE
PA
PC
SA
SC
CA
0
8
16
24
32
40
TOTAL RESPONSES
STRATEGIES

A Study of the Psycholinguistic Abilities of Eighty-nine Culturally Disadvantaged Children

Donald J. Stedman, Nicholas J. Anastasiow

and Robert L. Spaulding

Studies of children who are disadvantaged have systematically pointed to deficiencies in language development. Psycholinguistic evaluations have specified auditory comprehension and language facility as particular weaknesses and further inferred cognitive deficiencies in processing language information. In an effort to evaluate the psycholinguistic patterns of eighty-nine culturally disadvantaged children and the relationship of the patterns to the children's general development the present study ensued.

The ITPA, which is designed tc measure the various aspects of language utilization in children from ages three through nine, has been widely used with retardates and youngsters from "culturally deprived" populations. Since it purports to assess a number of linguistic and cognitive skills, it is valued as an important diagnostic test. During the fall of 1967 the Illinois Test of Psycholinguistic Abilities (ITPA) was administered to 46 boys and 43 girls from low-income families ranging in age from 53.7 to 78.5 months who were attending five pre-school and ungraded primary school prog$_{r}$ams.

Overall review of the data suggested that mean language ages (LA) in the five groups range from two to twelve months lower than the mean CA's; the largest discrepancy being in the 6.5-year-old group. One general finding was that mean LA's dropped as age increased in this population. There was a strong suggestion that the variability or change in psycholinguistic style was less among the girls than among the boys and that, in general, girls' mean LA's were the same as the mean LA's for the boys but that psycholinguistic profiles were different in character.

- an EIP Publication

A Follow-up Study of the Psycholinguistic Abilities of Forty-Six Culturally Disadvantaged Children

Donald J. Stedman, Nicholas J. Anastasiow,
and Robert L. Spaulding

In order to compare the performance of culturally disadvantaged children before and after a school experience, 46 children previously evaluated by means of the Illinois Test of Psycholinguistic Abilities (ITPA) during the fall of 1967 were retested in the spring of 1968. The goal of this study was to examine the general effects of an educational program on language or psycholinguistic development.

Twenty-three boys and twenty-three girls from five preschool and ungraded primary programs for disadvantaged children were tested. The follow-up groups, ranging in mean age from 59.2 to 82.5 months, were randomly drawn for the comparison.

Results indicated varying effects within and between groups of different age and sex composition. When general language age gains were compared with expected gains from aging, the greatest gain was found in the six-year-old group while a drop was noted among one group of five-year-olds. A small gain was noted among the other five-year-old group and in both seven-year-old groups.

Intratest variance was examined within each group. Special attention was given to remarkable gains or losses which occurred in the nine skill areas tapped by the ITPA.

The comparison of these data with the previous evaluation data of Fall 1967 proved to be of considerable value in estimating the impact of an educational program and planning for future language environments.

In general, the ITPA was found to be a useful and reliable measure for an educational research program and may be of extraordinary value in the development of a clinical teaching approach on an individual or small group basis for children with common psycholinguistic patterns.

- an EIP Publication

An Evaluation of the Psycholinguistic Abilities of Eight Culturally Disadvantaged Preschool Children

Bonnie S. Rothman, and Donald J. Stedman

This study examined the effects of family background, specifically the presence of older siblings and their sex, on the psycholinguistic abilities of the culturally disadvantaged preschool child as measured by the Illinois Test of Psycholinguistic Abilities (ITPA). The sample was composed of eight preschool children (4 boys and 4 girls) ranging in age from 3 years to 5 years. Although selection was based primarily on the presence of older siblings in the household, the factor of intelligence was controlled by limiting the Ss to those who had obtained an IQ score between 80 and 105 on the Peabody Picture Vocabulary Test. The ITPA was used as the primary evaluation instrument, and the Stanford-Binet was administered for supplementary data. Stanford-Binet results did not seem correlated with the overall ITPA on the subtests.

ITPA results were analyzed for overall trends for the group as a whole as well as varying trends which might occur according to the sex of the S, the predominant sex of his siblings under 14 years of age, the size of the family, and the presence of siblings 15 years of age or older. On each subtest and for the general abilities classified as association, encoding, decoding and sequential, the Ss were compared on the basis of a predominantly masculine (masc inf) or feminine (fem inf) sibling influence.

Results indicated overall superiority in visual motor tasks when compared

with similar auditory-vocal tasks. Except in the encoding tasks, this same pattern was found for those children designated as the "fem inf" group while the opposite was true if the "masc inf" group. Sex of the subject, however, did not seem to influence specific abilities although the boys obtained greater overall language ages. A brother within four years of the age of S was correlated with relatively high scores in motor encoding ability regardless of the sex of S. Strength in vocal encoding was found to be present in the small family or the family with children predominantly over 15 years old. This may be due to the amount of attention possible.

Results were discussed in terms of previous research suggesting sex-related differences in cognitive style associated with learning and linguistic behavior as they relate to family constellation and masculine and feminine influence, as well as to the sex of S himself. Girls, as S or sibling, generally were superior to boys in verbal behavior and reading, which required as visual orientation, while boys were superior in the area of more abstract abilities.

More extensive experimentation with larger samples on the relationships of family constellations and psycholinguistic abilities would tend to give greater credence to the data obtained and the importance of the factors studied.

- an EIP Publication

Self-Social Concept of Young Negro Children

Martha Pratt Campbell

Relationships of self-social concepts to age, sex, intelligence, achievement, number of siblings, number of years in the EIP preschool program, and separation from the biological father were investigated. The hypotheses were: (1) Age, achievement, and intelligence are positively correlated with the self-social concept of the EIP subjects; (2) Disadvantaged preschool children will identify more closely with the mother than with the father, friends or teacher; and (3) Girls identify more realistically than boys in terms of sex, realism of size and realism of color.

The subjects for the study were sixty-seven three-, four-, five-, and six-year-old Negro children from poverty areas and who were participating in the Durham (N. C.) Education Improvement Program. The instrument used for the study was the Children's Self-Social Constructs Test developed by Henderson, Long and Ziller. Evidence of reliability and validity had been established through previous research by the authors. The test measured various aspects of the subject's conception of himself in relation to others. Other instruments used to gather information were the Preschool Attainment Record and the Stanford-Binet Intelligence Test (Form LM). Pearson correlation coefficients, partial correlations, and *t* tests of significance differences between means were used to analyze the data.

None of the three hypotheses tested were supported. The data suggested however, that: (1) It is the stage of development, not chronological age, that is important in identification of children with significant others; (2) Separation from the biological father does not necessarily have a negative effect on the self-social concept of the child; (3) Children as young as three years of age have attitudes about themselves which they can express to others under appropriate situations; and (4) Testing the self-concepts of young children assists in understanding their behavior and personality.

Masters Thesis, University of North Carolina
Greensboro, North Carolina 1970

Durham Education Improvement Program

Annotated Bibliography

1965 - 1970

Anastasiow, N. J. Predicting effectiveness of curriculum innovations requiring teacher change (The Schaefer model applied to teachers). Education Improvement Program, Duke University, Durham, North Carolina.

This study proposed that an expansion of the Schaefer (1959) model (organization of behavior with axes of love-hostility and autonomy-control) can be used for interpreting teacher behavior.

Anastasiow, N. J. Linguistic reading in Negro first graders. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

A test designed to measure the achievement of children instructed in reading by the linguistic approach was administered to EIP first grade children and to a control group. EIP girls made greater gains than a control group of girls. Also, the total EIP group made greater gains than the total control group.

Anastasiow, N. J., Sibley, S. A., & Leonhardt, T. A comparison of didactic, guided discovery and discovery teaching of mathematical concepts to kindergarten children.

Utilizing the theoretical approaches of Bruner and Ausbel, a test of the efficiency of discovery learning techniques in teaching mathematical concepts to kindergarten children was conducted.

Anastasiow, N. J. Importance of tools in a tool technology program. Education Improvement Program, Duke University, Durham, North Carolina, 1968. (Abstract)

This study was introduced to EIP kindergarten children to evaluate the tool technology program developed by Anastasiow and Friedlein. Over a six-week period a science unit on simple machines was presented to motivate them to construct some simple objects by using tools. Pre- and post-tests were given in the area of abstract reasoning, non-verbal association, and spacial relations. The data indicated the kindergarten children had higher mean scores than a control group of first graders who had had the program without the tools.

Anastasiow, N. J. The effectiveness of innovative language lessons in language development. Education Improvement Program, Duke University, Durham, North Carolina, 1968. (Abstract)

A series of innovative language lessons were introduced to an experimental group of kindergarten and first grade students. All children made positive gains in object identification and most made gains in articulation.

Anastasiow, N. J. The use of a creative writing study to increase the language development of first grade children. Education Improvement Program, Duke University, Durham, North Carolina, 1968. (Abstract)

A group of first grade boys and girls, who were identified as needing additional experience with language development before continuing a formal reading program, were enrolled in a summer program of creative writing. Although no significant differences were obtained in measures of the child's spontaneous verbal fluency and articulation, observations within the classroom revealed increased complexity of written work, increased production of written and dictated stories and greater pupil involvement in classroom activity.

Babad, E. Y. The role of social expectations in the relative satiation effect. Education Improvement Program, Duke University, Durham, North Carolina, 1969.

This study questions the thesis that the effectiveness of a social reinforcer in conditioning is only an inverse function of the subject's satiation level. It suggests that during the first interaction with the experimenter the children develop expectations that determine their future performance.

Babad, E. Y. Learned expectations and drive states as determinants of the effectiveness of social reinforcing stimuli. Education Improvement Program, Duke University, Durham, North Carolina, 1969.

The theory that the human deprivation effect is solely the function of the drive state of the subjects is challenged and it is hypothesized that expectations, cognitively learned in the treatment phases, also contribute to the effect.

Barton, P., Abbott, M., Sibley, S. A., & Cooper, B. Introduction of geometric concepts and a reinforcement system to culturally diasadvantaged kindergarten children. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

Twenty-two kindergarten children were instructed in pre-number concepts over a period of eight weeks. One group received individual token reinforcement for correct responses only for the last week of the curriculum. Although tokens did not lead to a greater math achievement, they did lead to a greater preference for math activities.

Barton, P. Supplementary math activities. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

Math activities using simple materials were presented for use with the primary aged child.

Bayer, J. A guide for selecting art materials. Education Improvement Program, Duke University, Durham, North Carolina, 1968

This is a guide for the elementary school teacher in assembling the materials for art instruction.

Bayley, N. The two-year old: Is this a critical age for intellectual development? Education Improvement Program, Duke University, Durham, North Carolina, 1966.

A paper presented at Duke University in 1966 summarizing research in early child development over the last several decades and presenting arguments in data for focusing upon the two-year-old in order to better understand the process of intellectual development during its critical phases.

Borstelmann, L. J. The culturally disadvantaged and compensatory education: Fantasies and realities. Address to the Northeren Ireland Branch of the British Psychological Society, Belfast, January, 1967.

A discussion and critique of psychological conceptualization on the problem of educational intervention programs.

Borstelmann, L. J. Missionaries or educators? Parent education with poverty families. (Report initially prepared for a consultation conference in Washington, D.C., December 1964, sponsored by the Interdepartmental Committee on Children and Youth and revised under the auspices of the Durham EIP, funded by the Ford Foundation). Education Improvement Program, Duke University, Durham, North Carolina, 1967. (Accepted for publication in Community Mental Health Journal).

Borstelmann, L. J. Psychology consultation for teachers. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

This is an explanation of the psychological consultation program developed by EIP for the benefit of its teachers. The referral, evaluation, and follow-up of one particular child is discussed.

Clifford, M. The Educational Technician Program of the Durham Education Improvement Program. Preliminary report, Education Improvement Program, Duke University, Durham, North Carolina, 1967.

Cooper, G. Opening Windows. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

This publication consists of articles and transcriptions of workshop sessions which explore the possible directions for language development programs suited to the needs of disadvantaged children, at the nursery, pre-school and elementary school levels.

Creative Writing by EIP Kindergarteners 1968-1969. Education Improvement Program, Duke University, Durham, North Carolina, 1969.

The Durham County Schools, a Progress Report, 1952-1968. Technical assistance in the preparation of this report was provided by the Information Office of the Durham Education Improvement Program, Duke University, Durham, North Carolina.

Durham Cooperative Project for Pregnant School Girls. (A proposal submitted to the USOE by the Durham City School System, December 20, 1967). Proposal was funded by a grant under ESEA Title III for an Exemplary Program for the Southeastern Region).

The purpose of the project was to provide the opportunity for teenage girls to continue their education during pregnancy in addition to offering them health and social services.

The Durham Education Improvement Program, 1965-66. Durham, North Carolina: Education Improvement Program, Duke University, 1966.

The Durham Education Improvement Program, 1966-67. Durham North Carolina: Education Improvement Program, Duke University, 1967.

The Durham Education Improvement Program, 1966-67, (Research). Durham, North Carolina: Education Improvement Program, Duke University, 1967.

The Education Improvement Program (An overview). Education Improvement Program, Duke University, Durham, North Carolina, 1966.

Friedlein, D. Tool technology for the classroom. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

A tool technolog. program for the pre-school classroom designed to develop a repertoire of basic skills and to enhance the regular classroom activities.

Frequency percentages for research assistants. (Compiled by Mary McDonald), Education Improvement Program, Duke University, Durham, North Carolina, 1966.

Gallagher, J. J. The role of evaluation in longitudinal programs for the culturally disadvantaged. Urbana, Illinois: Institute for Research on Exceptional Children, University of Illinois, 1965. (Paper prepared as part of a consultive relationship with the Education Improvement Program).

Gallagher, J. J. Research proposal form. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

Gallagher, J. J. Random and controverisal comments from the ivory tower. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

Gallagher, J. J. Research and evaluation in the Education Improvement Program. Education Improvement Program, Duke University, Durham, North Carolina, 1965.

A position paper on research and evaluation prepared by Gallagher, Stedman and Spaulding and presented in this report by Gallagher.

Gallagher, J. J. Introduction to learning disorders. A presentation to the Conference on Learning Disorders, September 13, 1966, Athens, Georgia.

A discussion of the problem of children with learning disorders; some suggestions for terminology, clinical and educational treatment approaches.

Gallagher, J. J. How to get from here to there? Education Improvement Program, Duke University, Durham, North Carolina, 1966.

A position paper prepared for the Regional Education Laboratory for the Carolinas and Virginia, discussing the problems of research, development, dissemination and acceptance in innovative educational programs.

Gallagher, J. J. Curriculum changes for gifted students. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

A discussion of labels and goals in the area of curriculum development for gifted and talented children.

Gallagher, J. J. The quiet place - a means for behavior control. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

A staff paper covering the need for behavior control in the classroom and suggesting a method for such control without the use of punishment.

Gallagher, J. J. REL - Program development. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

This is a brief explanation of the REL-CV's continuous training program which involves the training of specialists who can educate others in their practicum settings.

Gallagher, J. J. A model for studying teacher instructional strategies. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

The presentation of a model for the study of instructional strategies suggesting a topic classification system and presentation of data using this system based on Guilford's model.

Gallagher, J. J. A view into the cloudy crystal ball. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

A list of suggested special study projects for an innovative educational program.

Gallagher, J. J. A system of topic classification - classroom interaction study. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

A report to the Bureau of Research, U. S. Office of Education on a study of classroom interactions and the development of a system of classifying topics and verbal interactions between teacher and students in the classroom.

Gallagher, J. J. Minority group needs in education -- the handicapped. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

Gallagher, J. J. New directions in special education. Exceptional Children, March, 1967, 441-447.

Gallagher, J. J. A program for implementing curriculum on ethical decision making. Education Improvement Program , Duke University, Durham, North Carolina, 1967.

A program is proposed to provide a means by which character education would be provided in a curriculum that was consistent with the diverse backgrounds of our culture. The emphasis is upon giving the child tools and skills by which he can explore his own feelings.

Gallagher, J. J. Special education in 1977: the projection of trends. Education Improvement Program, Duke University, Durham, North Carolina, 1967. (Prepared for the Council for Exceptional Children for use in the Conference on Uses of Satellites in Education, Washington, D.C.)

A projection of special education needs and programs over the next decade reflecting on societal change, the current direction of education and the needs of exceptional children.

Gallagher, J. J. Changes in American education and their implications. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

A presentation of major changes in this country over the last several years and the meaning of these changes for the future of education in general and more specifically issues related to special education.

Gallagher, J. J. The role of minority groups in educational program development. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

A useful characterization of the various subgroups or educational minorities in special education as minority groups in an effort to understand the ways in which competition and cooperation develop and are fostered in the general area of special education.

Gallagher, J. J., Anastasiow, N. J., Cooper, Barbara., Cooper, Betty., Douglass, L., Funderburk, A., Gordon, R., Hoppe, J., & Rothbard, M. Special study report #1 - Classroom behavior modification techniques applied to educationally deprived, primary age children. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

Three children manifesting unfavorable behavior traits at the laboratory school were given systematic reinforcement (first food - and later social) for favorable behavior. Two of the children improved under this procedure.

Gallagher, J. J., Funderburk, A., & Leonhardt, T. Special studies project #2 - The social maturity of disadvantaged children. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

The performances of 25 disadvantaged kindergarten students on the Stanford-Binet and the Vineland Social Maturity Scale were compared. The purpose

of this was to determine the patterns of development of the disadvantaged child when he comes into contact with the educational program.

Gallagher, J. J., Dixon, C., & Funderburk, A. Special studies project #3 - An investigation of the cognitive processes of disadvantaged children. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

This project examined the capabilities of primary school-age disadvantaged children in responding to a specially developed set of tasks designed to evaluate the development of intellectual skills in the dimensions of classification, analogies, and systems. Deficiencies appeared in the areas of verbal concepts and in attention span.

Gallagher, J. J. The role of the interaction sciences in higher education. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

This article presents the needs and operations of the study areas that investigate the relationship of basic fields of knowledge to specific environments and these interaction sciences are contrasted with the knowledge sciences.

Groenberg, A. The city of Durham: The community and its history. Education Improvement Program, Duke University, Durham, North Carolina, 1969. (Draft).

This history and description of the Durham community was compiled as a teacher's reference for class study programs. It includes a review of the area's industry, its educational, health and welfare facilities and public services, as well as a description of the organization and administration of the municipal government and an outline of election procedures. The short history of the city begins before colonization and traces settlement and the rise of the tobacco industry. Included is a section on the building of the black community. The report also includes a list of relevant data and a comprehensive bibliography.

Harris, F. R. Field studies of social reinforcement in a preschool. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

Brief descriptions are given of studies in which reinforcement principles were used to modify the problem behavior of children.

Harrison, F., & Wasik, B. H. The token economy used in a research project with mothers from culturally deprived environments. Education Improvement Program, Duke University, Durham, North Carolina, 1969.

The token economy, a motivational system, was utilized to influence the attendance of 15 women who were participants in a five-week Parent-Child Center. Points earned for attendance or volunteering services could be exchanged by the mothers for desired items. A Mann-Whitney U test was performed to test the significance of the difference of attendance in 1967 and 1968. Mean attendence in 1968 was found significantly improved over the attendance in the 1967 program ($p = .0735$, one-tailed test).

Annotated Bibliography (continued)

Harrison, F. & Lewis, J. S. A mother's summer workshop, July 4 - July 20, 1969. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

This report discusses a six-week summer workshop conducted with a small group of mothers from culturally disadvantaged circumstances. In addition to discussing recruitment and activities, this paper gives an evaluation of the program and results of a follow-up study done one month after the workshop.

Harrison, F., & Thogerson, A. A Parent-Child Center. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

The Parent-Child Center, an exploratory, short-term pilot study, involved 10 mothers with two-year-old children whose fathers were not present in the home. The participants were of low socio-economic status. This educational intervention program focused on training mothers in ways which would help them in teaching their children and developing cognitive skills in children.

Harrison, F. Group member evaluations of program activities. Education Improvement Program, Duke University, Durham, North Carolina, 1969. (Abstract)

A month after the end of a five-week summer workshop for disadvantaged mothers of pre-school children, the mothers were asked to evaluate the activities which had been offered. Familiar activities and those with the most potential for reward were rated highest. The mothers gave more positive than negative ratings to the items.

Katzenmeyer, W. & Leonhardt, T. Changes in IQ of EIP subjects as a function of test sequences. Education Improvement Program, Duke University, Durham, North Carolina, 1969.

In looking at IQ changes after one and two years in the EIP program, it became evident that there were significant drops for subjects who were four or five years of age at the first testing. A close look at the results as a function of the particular IQ test showed that a drop in IQ occurred when the S-B was administered first and the WPPSI second. This comparison was apparently a function of the lower scores typically obtained on the WPPSI.

Kerton, B., & Stedman, D. J. A comparative study of developmental patterns of disadvantaged infants in Kingston, Jamaica, and Durham, North Carolina. Education Improvement Program, Duke University, Durham, North Carolina.

Sixty-two infants, aged nine to fifteen months from Durham, North Carolina, and from Kingston, Jamaica, were evaluated with the Bayley Infant Development Scales. A comparison of 31 pairs of age- and sex-matched infants was performed to study the differential development levels of two disadvantaged populations in different geographic areas with differing cultural backgrounds.

Kinsbourne, M. Cumulative learning study. Education Improvement Program, Duke University, Durham, North Carolina.

In this pilot study 19 children were tested on their ability to learn a list of nonsense shapes and pair them with oral digits. Two methods of presentation were used and the advantage of the cumulative method was significant at the 5% level of probability.

LaBarre, M. Giant steps mark the first year. The Durham Education Improvement Program 1966-67. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

LaBarre, M. Pregnancy experiences among married adolescents. American Journal of Orthopsychiatry, 1968, 38, 47-55.

LaBarre, M. The strengths of the self-supporting poor. Social Casework, October, 1968.

This article presents a documentary discussion of the strengths of a group of self-supporting poor families.

LaBarre, M. The triple crisis: Part I, adolescence, pregnancy and motherhood, marriage and pregnancy. With LaBarre, W., Part II: adolescence, marriage and fatherhood. (In press in monograph: The double jeopardy, the triple crisis - illegitimacy today. National Council on Illegitimacy, 1969).

This paper discusses the problem of teenage pregnancy in terms of recent studies, class attitudes and adolescent development. Suggestions for social agencies dealing in this area are given.

LaBarre, M. A socio-demographic study of pregnant school girls referred to the cooperative project. Education Improvement Program, Duke University, Durham, North Carolina.

Interview data were collected on 60 pregnant secondary school girls attending a pilot continuing education project. These data document the need for continuing education, family health and vocational rehabilitation counseling.

LaBarre, M., Hjertholm, E., & Stedman, D. J. Narrative description of the social development of two-year olds in the EIP nursery. Education Improvement Program, Duke University, Durham, North Carolina.

A group of nine children who were between 21 and 24 months of age and who were attending an EIP nursery had been evaluated by many measures through the first two years of their lives. Further evaluations in the nursery situation led to some generalizations about "two-year-olds" in a nursery.

LaBarre, M. The case for case studies in research. Education Improvement Program, Duke University, Durham, North Carolina.

In this position paper the argument that the "case study" method of research in clinical situations helps eliminate the undesirable consequences of the strict quantification of phenomena is presented. It is concluded that proper training and practice can lead to the development of creative research skills and thus enable the researcher to reach beyond the traditional clinical situation, to a broader community involvement.

LaBarre, M. The special treatment challenge of pregnant teenagers. Education Improvement Program, Duke University, Durham, North Carolina.

In this position paper the author suggests that a viable theoretical construct for the study of adolescent pregnancy and parenthood may be found in the concept of "developmental crises".

Lee, H., Funderburk, A., Leonhardt, T., LaBarre, M., & Penny, C. The attitudes of disadvantaged youth. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

A series of structured interviews was developed for adminstrations to EIP Youth Program membership to establish initial data on their attitudes, aspirations, and goals.

Leonhardt, T. Use of cognitive dissonance to produce changes in the attitudes and behavior of economically disadvantaged first grade children. A paper presented at the Southeastern Psychological Association meetings, New Orleans, Louisiana, February, 1969.

The purpose of this study was to investigate the possiblity of inducing dissonance in first grade children to effect attitude and behavioral changes toward well-liked toys. The results offer only limited initial support that dissonance can be used to change behavior, and indicate that these initial effects of dissonance are not maintained over time.

Leventhal, D. S. & Stedman, D. J. A factor analytic study of the performance of 340 disadvantaged children on the Illinois Test of Psycholinguistic Abilities. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

Contrary to previous indication that the ITPA was designed to provide independent estimates of a child's level of functioning in each of nine abilities evaluated, the factor analysis in this study questioned the independence of the abilities assessed. Specific likenesses and differences between encoding and decoding abilities within and between Negro and white child groups were presented and discussed.

Morine, G., & Greenberg, S. Techniques for Better Teaching. New York: International Textbook Publishers, 1969, in press.

The "category system" of classifying teacher activities attempts to separate observation from subjective judgments based on such data, thereby providing some objective information for the development of teacher self-evaluation. This manual was designed to aid the student teacher in learning to observe teachers and students in the classroom and in using various category systems related to teaching strategies.

Morrissey, S., & Stedman, D. J. Psycholinguistic abilities of culturally deprived children. Senior author's Master's Thesis, Department of Psychology, Duke University, Durham, North Carolina, 1965.

Fourteen culturally deprived first grade boys and girls were evaluated with the Illinois Test of Psycholinguistic Abilities (ITPA) before and after their first eight months in school. ITPA profiles were nearly identical for the two testings. The data indicated that the ITPA is a reliable instrument for use with the culturally deprived child.

Rothman, B. S. & Steadman, D. J. An evaluation of the psycholinguistic abilities of eight culturally disadvantaged pre-school children. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

This pilot study examined the relative effects of feminine versus masculine influence on the language development of disadvantaged children.

Rothman, B. The effects of cultural deprivation on language development: An observation comparison of two groups. Education Improvement Program, Duke University, Durham, North Carolina, Spring 1966.

This paper presents a discussion of how the cognitive structure of the culturally deprived child is affected by the limitations of the world around him.

Rothman, B. An observational comparison of the language development of two pre-school groups. Education Improvement Program, Duke University, Durham, North Carolina, 1966. (Research Report lists additional author as Borstelmann, L. J.).

The linguistic maturity of 16 disadvantaged and 20 middle class pre-school children was examined in this paper. Two children from each group were singled out for detailed comparison. The middle class subjects proved superior in most measures.

Scagnelli, P. Research proposal on infant language training. August 1966.

The goal of the study proposed here was to demonstrate experimentally that the early development of language is subject to enhancement or acceleration by training techniques. Also proposed was a demonstration that mothers of varying educational levels can be taught and will utilize the language training techniques prescribed in the study. Two research designs are proposed.

Shenkman, H. A language program for deprived preschool children. (Lessons 1-20) Education Improvement Program, Duke University, Durham, North Carolina, 1967.

This is a language program designed to give children an overall feeling for language patterns.

Shenkman, H. A language program for the culturally disadvantaged child. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

This is a language program for kindergarten or first grade children. It includes a sequence of daily structured programs and supplementary activities.

Sherwood, D. W. The differential effects of assessment context and scoring method on creativity performance in children. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

Matched groups of sixth grade males were administered five representative Torrance and three representative Wallach-Kogan creativity procedures under test-like conditions and under game-like conditions. Findings are discussed in terms of creativity-intelligence correlations and difference between procedures and conditions.

Sibley, S. Relationship between motivational rank and ability rank in reading. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

First and second grade teachers were asked to rank the members of their respective classes on motivation to read and on reading ability. Spearman rho correlations between these rankings indicated a stronger relationship between motivational rank and ability rank in the second grade. A Mann-Whitney U test indicated that in the first grade the girls were ranked significantly (.02) higher motivationally than the boys.

Sibley, S. Retention testing of kindergarten math curriculum. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

First graders entering EIP who had received a pre-number geometrically oriented math program in kindergarten the previous year were retested on the curriculum to determine retention. T-tests showed that the kindergarten pre- (23.47) and post-test (37.18) means of the experimental group were significantly different beyond the .005 level. Subjects made significant gains from pretest to posttest. The retention test given in the first grade was significantly different from the pretest.

Sibley, S. Work rate of disadvantaged pre-school children at an audio-visual letter discrimination task as a function of token reinforcement. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

Twelve economically deprived kindergarten children were the subjects in this audio-visual letter matching task. The children were distributed into four matched ability groups. Each group received a different sequence of reinforcement conditions. The two experimental groups responded more under reinforcement than no reinforcement conditions regardless of the sequence.

Sibley, S., & Cooper, B. A method of evaluating teacher compatibility in team teaching (FIRO-B: Fundamental interpersonal relations orientation-behavior). Education Improvement Program, Duke University, Durham, North Carolina, 1966.

All EIP teachers were administered the 54-question FIRO-B scale which yields indirect measure of how much she wishes to receive in three interpersonal areas - inclusion, control, and affection. This study examined the possibility of using this scale as a predictor of teaching team compatibility.

Sibley, S., & Gaines, P. Modification of the classroom behavior of a disadvantaged first grade boy by social reinforcement and isolation: "Tommy". Education Improvement Program, Duke University, Durham, North Carolina, 1968.

A treatment program of social reinforcement for desirable classroom behaviors, withholding of reinforcement for inappropriate behaviors, and social isolation contingent upon unacceptable behavior was used on this first grade boy previously diagnosed as a "character disorder (impulsive personality) or borderline schizophrenic." The child's more severe behavior problems decreased, but disruptive and mildly inappropriate behaviors were not entirely eliminated.

Sibley, S., & Owens, F. Teacher and pupil social preferences. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

Thirty-eight first and second year students were administered a series of sociometric questions concerning their peers and their teachers. The six teachers and two teacher aides were administered a similar series of questions concerning their preferences. The results indicate that these children had a very high degree of awareness of the social preferences within their school groups.

Sibley, S., Douglass, L. & Elsas, E. Modification of the classroom behavior of a disadvantaged first grade boy by social and food reinforcement and isolation: "Joe". Education Improvement Program, Duke University, Durham, North Carolina, 1968.

The subject was a six-year-old disadvantaged Negro boy who seemed unable to follow directions, had deficient and unintelligible speech, had frequent temper tantrums, and had no appropriate peer interaction. Social reinforcement, food reinforcement, and isolation were used in a motivation program. The modification phase was extremely effective in increasing desirable behavior and this behavior generalized to other settings.

Sibley, S., Barton, P., & Leonhardt, T. Modification of immediate and delay gratification patterns of disadvantaged primary school children through imitation. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

Seventy-two disadvantaged children were assigned to one of three treatment conditions. One group observed a live model who exhibited a delay of gratification pattern of behavior which was opposed to the child's initial tendencies; another group was exposed to a video tape of the same model; a final group had no exposure to models. Delay preference tests were administered to each child before exposure to the model, after exposure to the model, and two weeks after the experimental treatment.

Sibley, S., Abbott, M., & Cooper, B. Modification of the classroom behavior of a disadvantaged kindergarten boy by social reinforcement and isolation: "Bobby". Journal of Experimental Child Psychology, 1969, 7 (2), 203-219.

The goal of this study was to decrease disruptive, resistive, and assaultive behaviors and increase the appropriate peer interactions of a kindergarten boy. The experimental program involved presentation of teacher attention contingent upon desirable classroom behavior, withholding of attention contingent upon inappropriate behavior, and social isolation contingent upon unacceptable behavior. A definite behavioral improvement was obtained.

Sibley, S., Gordon, R., & Peyton, A. Modification of the classroom behavior of a disadvantaged kindergarten boy by social reinforcement and isolation: "Larry". Education Improvement Program, Duke University, Durham, North Carolina.

A treatment program to modify Larry's problem behavior was undertaken using social reinforcement and isolation. The teacher had diffuculty maintaining consistent behavior throughout the treatment program. The study demonstrates the

necessity of focusing on the teacher's behavior as well as the child's behavior in carrying out a behavior modification program.

Sibley, S., Senn, S., & Epanchin, A. Race and sex of disadvantaged adolescents and cooperation in a mixed motive game. Psychonomic Science, 1968, 13 (2), 123-124.

The cooperative behavior of 24 economically disadvantaged junior high pupils was compared in a Prisoner's Dilemma game. This game provides that if both subjects cooperate, they both gain moderately; if one competes while the other cooperates, the competitor wins and the other subject loses. If both compete, both lose. The results revealed that female subjects produced significantly more cooperative responses when playing with a partner of the same race.

Sibley, S., Leonhardt, T., & Elsas, E. Cooperation of disadvantaged Negro adolescents in a mixed-motive game as a function of sex and partner's level of cooperation. (Unpublished paper, 1968)

Twenty Negro adolescents were the subjects in investigations of the Prisoner's Dilemma game. Both males and females tended to be more cooperative when playing with a partner of the opposite sex than with one of the same sex. In another study the apparatus was electrically predetermined to respond as a cooperative or a competitive partner unknown by the subjects. The subjects were most cooperative when receiving cooperative responses from the apparatus.

Sibley, S., Vitz, A., & Mason, J. Techniques of group behavior control with disadvantaged primary pupils. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

Several control methods were employed in this study in which almost all the children exhibited behavior problems. The behaviors of the children varied across several treatment conditions with a high mean desirable behavior during more structured conditions when clearly defined rules were in effect.

Sibley, S., Abbott, M., Stark, P., Bullock, S. & Leonhardt, T. Modification by social reinforcement of deficient social behavior of disadvantaged kindergarten children. (Accepted for publication in Young Child, 1969)

A modification program was put into effect to decrease the isolate behavior of two kindergarten children. The programs involved presentation of teacher attentio contingent upon isolate play. In the case of Allen, attention was made contingent upon play with other boys. Alice's interactive play with boys and girls fluctuated as a function of treatment, while Allen's interactive play did likewise.

Sibley, S., Anastasiow, N. J., Leonhardt, T., & Wasik, B. Interpersonal relations and compatibility of teaching teams, Education Improvement Program, Duke University, Durham, North Carolina, 1968.

The Fundamental Interpersonal Relations Orientation Scale (FIRO-B, Schutz), was administered in several different forms to all EIP teaching teams in the fall and spring. The six subscales are expressed - and wanted - degrees of inclusion, control, and affection. Reliability of team compatibility was .67. In addition to other findings, Negro members of the team scored less on expressed - and wanted - inclusion and wanted - affection than did white.

Gibley, S., Cooper, B., Elsas, E., Mason, J., & Simpson, J. Token reinforcement of disadvantaged first-grade boys in a small group situation. Education Improvement Program, Duke University, Durham, North Carolina. (Submitted for pulication, 1968).

Non-manipulatable tokens were successfully employed to increase the desirable behavior, verbal and non-verbal, of four disadvantaged first grade boys after social reinforcement techniques had failed.

Gibley, S., Gaines, P., Epanchin, A., & Knapp, N. Work rate of disadvantaged pupils at a word discrimination taks as a function of reinforcement conditions. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

Five second grade disadvantaged boys who were ranked by their teachers as being the least motivated to learn to read and to work at reading tasks were selected to participate in a word discrimination task. Token reinforcement was used to increase subjects' motivation to learn and was significant in increasing work rate and perserverance.

Spaulding, R. L. Environmental ecounters and cognitive development. Paper presented at North Carolina College, May 21, 1966.

Spaulding, R. L. Spaulding self-concept inventory. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

This is a seven page questionnaire for students to fill out which rates their strong and weak points.

Spaulding, R. L. Common blocks to learning. The PTA Magazine, September, 1966, 61 (1), 28-30.

This article discusses psychological, emotional, social and physical factors which may act as blocks to a child's ability to learn.

Spaulding, R. L. EIP teacher rating scale. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

This paper lists a brief description of seven teaching styles of classroom management.

Spaulding, R. L. Creating the environment for learning. Paper presented at the Fifth Annual Conference of the National Committee for the Support of the Public Schools, Washington, D. C., April 3, 1967.

This is a chart of different behavioral styles of children and indications for setting the environment for them at home and at school.

Spaulding, R. L. A transactional approach to classroom behavioral analysis. Classroom Interaction Newsletter, 1967, 3 (1), 12-15.

Two instruments for recording behavior, CASES and STARS, are described. This article discusses their use in modifying child and teacher behavior in the classroom.

Spaulding, R. L. Values to be set by EIP teachers in programming stimulus settings by prevalent coping styles of children. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

This is a chart listing certain variables pertaining to classroom management as they pertain to five coping styles of child behavior.

Spaulding, R. L. Classroom behavioral styles and treatment schedule. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

This paper describes by CASES categories different behavioral styles of children and includes diagrams for setting limits and demands in the classroom.

Spaulding, R. L. The Durham Education Improvement Program. In D. W. Brison and J. Hill, (Eds.), Psychology and Early Childhood Education. Monograph Series No. 4. Toronto: The Ontario Institute for Studies in Education, 1968, 37-50.

This discussion of the theoretical bases of the Durham Education Improvement Program provides a closely organized, succinct statement of the assumptions underlying both the etiology of educational failure and compensating treatments. Included are descriptive summaries of the various components of the Durham EIP and the instruments (CASES and STARS) developed by the author for classification of pupil and teacher behavior.

Spaulding, R. L. The Durham Education Improvement Program. Today's Education, February, 1969, 58 (2), 62-64.

The Durham Education Improvement Program is predicated on the assumption that disadvantaged children need not experience failure after failure in a system of schooling devised for a past generation in a far different social context. A description of the programs utilized to increase social and academic skills in a school environment transformed to suit the developmental needs of these children ensues.

Spaulding, R. L. The Southside experiment in personalized education. (Theme: The future of individualized instruction: Needs, possibilities, and prospects). A paper presented at the National Society for Programmed Instruction meetings, Washington, D. C., April 10, 1969.

This article is based on remarks presented at the National Society for Programmed Instruction annual convention, Sheraton Park Hotel, Washington, D.C., April 10, 1969. The major thesis is that the future of individualized instruction in the public schools is a function of the degree to which school authorities can develop systems which will transfer greater degrees of decision making power to children whithin structured limits.

Spaulding, R. L. Personalized Education at Soutside School, Elementary School Journal, Volume 70, Number 4, January, 1970.

Spaulding, R. L. A social learning approach to tne education of disadvantaged children in Durham, North Carolina. Education Improvement Program, Duke University, Durham, North Carolina, 1966-67.

An explication of theoretical assumptions, suggestions for program and evaluation approach following the social learning theory with disadvantaged children.

Spaulding, R. L. Proposed clinical training in the Education Improvement Program for Duke graduate students in elementary education. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

Spaulding, R. L. A coping analysis schedule for educational settings (CASES). Education Improvement Program, Duke University, Durham, North Carolina, 1966.

A instrument consisting of 13 categories of child behavior. See following description.

Spaulding, R. L. An introduction to the use of the coping analysis schedule for educational settings (CASES) and the Spaulding teacher activity rating schedule (STARS). Education Improvement Program, Duke University, Durham, North Carolina, 1967.

Presented in this paper are the 13 categories of CASES categorized on the basis of descriptive statements about the behaviors of children. The various categories of STARS, which include three areas of teacher-child transactions: cognitive, social, motor, are also presented. A detailed discussion of the categories of each scale ensues.

Spaulding, R. L. Highlights and early returns from the Durham EIP. Remarks prepared for delivery at the Annual Conference of the Southern Association of Colleges and Schools, Dallas, Texas, November 27, 1967.

Spaulding, R. L. Criteria for evaluating research reports. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

Spaulding, R. L. Southside School assignment and progress record. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

Spaulding, R. L. Spaulding teacher activity rating schedule (STARS). Education Improvement Program, Duke University, Durham, North Carolina, 1966.

An instrument presenting the various categories of STARS, including the three areas of teacher-child transactions: cognitive, social, and motor. (This instrument is incorporated in An Introduction to the Use of the Coping Analysis Schedule for Educational Settings (CASES) and the Spaulding Teacher Activity Rating Schedule (STARS), 1967.)

Spaulding, R. L. Classroom behavior analysis and treatment using the coping analysis schedule for educational settings (CASES) and the Spaulding teacher activity rating schedule (STARS). Education Improvement Program, Duke University, Durham, North Carolina, 1968.

This paper presents the revisions of the various categories of CASES and STARS first delineated in An Introduction to the Use of Coping Analysis Schedule for Educational Settings (CASES) and the Spaulding Teacher Activity Rating Schedule (STARS). Since the first publication, CASES has been utilized in classifying pupils according to one of six "coping styles". These six "coping styles" and

six proposed treatment schedules are presented.

Spaulding, R. L. Classroom behavior analysis and treatment. Education Improvement Program, Duke University, Durham, North Carolina, 1969.

This paper presents the revisions of the various categories of CASES and STARS delineated in Classroom Behavior Analysis and Treatment Using the Coping Analysis Schedule for Educational Settings (CASES) and the Spaulding Teacher Activity Rating Schedule (STARS), 1968.

Spaulding, R. L. Observational methodology in the experimental school setting. A paper presented at the AERA meeting, Los Angeles, California, February 8, 1969.

Spaulding, R. L. The Durham Education Improvement Program. (Theme: Changing the learning patterns of the culturally different) Paper read at the Pre-Convention Institute of the International Reading Association, Kansas City Missouri, April 29, 1969.

Spaulding, R. L. & Rothbard, M. Effects of positive reinforcement on the negative behavior of a kindergarten child. Education Improvement Program, Duke University, Durham, North Carolina, 1966. (Abstract)

Social reinforcement by the teacher of appropriate classroom behaviors was successful in increasing these behaviors in a kindergarten boy. Reinforcement was withheld for inappropriate classroom behaviors by the means of ignoring them.

Spaulding, R. L. & Katzenmeyer, W. G. Effects of age of entry and duration of participation in a compensatory education program. Paper prepared for a preschool conference, Westbury Campus, Hofstra University, Hempstead, New York, April 21, 1969.

Data reported in this paper relate to the question: At what chronological age does intervention by EIP have the greatest impact on the intellectual development of disadvantaged children? Data are also presented regarding the influence of one versus two years of participation in the Durham EIP. The covariance analysis revealed that one entry age could not be concluded to afford greater increase in IQ than another. Significant increases in measured IQ were found overall after a year in the program and persisted after two years.

Spaulding, R. L., Rooks, J., & Rothbard, M. The use of principles of behavior modification in EIP classrooms. Education Improvement Program, Duke University, Durham, North Carolina, 1966.

An overview of behavior modification approaches in EIP and definitions of terms used in the development and application of programs using reinforcement techniques.

Spaulding, R. L. Language stimulation in early childhood. Paper presented to the annual convention of the National Council of Teachers of English, Shoreham Hotel, Washington, D. C., November 28, 1969.

This paper presents the assumptions and strategies underlying language development activities and some of the results of the Durham Education Improvement Program. It is designed to investigate a variety of instructional techniques which are considered useful in overcoming some of the disadvantages which children from low income and culturally different backgrounds suffer when they enter public schools.

Spaulding, R. L., Funderburk, A., & Leonhardt, T. Summary of effects of preschool education. A report to the National Conference of State Legislators, Washington, D. C., 1966.

A brief overview of the development of preschool education programs as intervention programs and a brief summary of the outcome of various studies.

Spence, L. & Stedman, D. J. Associative clustering in culturally deprived and non-culturally deprived children. (Senior author's Master's Thesis, Department of Psychology, Duke University, 1967).

Subjects for this study were 40 five and six-year-old Negro children of which 20 were culturally deprived and 20 were not. An evaluation of associative clustering, perceptual sorting, sort naming, and concepts naming behavior indicated similarity between the two social classes.

Spinarski, J. Social-behavior theory, open-system theory and social group work. Essay submitted in partial fulfillment of the requirements for the degree of Master of Social Work in the School of Social Work, University of North Carolina, Chapel Hill, 1968.

This paper demonstrates the usefulness of two sets of theoretical propositions to social group work.

Stedman, D. J. Enrichment programs for the young child. Remarks presented at the 44th Annual Meeting of the American Orthopsychiatric Association, Washington, D. C., March 20-23, 1967.

Stedman, D. J. Developmental-behavioral patterns in twenty-six culturally disadvantaged infants. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

This is an interim report on the developmental-behavioral patterns of 26 infants (14 boys and 12 girls) of 36 culturally disadvantaged infants being followed in the longitudinal study of the Infant Evaluation Project. Each child was evaluated individually in the presence of his mother at one, two, three, and six months of age, using the Bayley Scale of Infant Mental and Motor Development and its Infant Behavior Profile.

Stedman, D. J., Anastasiow, N. J. & Spaulding, R. L. A follow-up study of the psycholinguistic abilities of forty-nine culturally disadvantaged children. A special study report on the ITPA. Education Improvement Program, Duke University, Durham, North Carolina, Spring, 1968.

The goal of this study was to examine the general effects of an educational

program on language or psycholinguistic development. In order to compare the performance of culturally disadvantaged children before and after a school experience, the Illinois Test of Psycholinguistic Abilities (ITPA) was used, and it was found to be a useful and reliable measure for an educational research program. It is further suggested that the ITPA may be of extraordinary value in the development of a clinical teaching approach on an individual or small group basis for children with common psycholinguistic patterns.

Stedman, D. J., Anastasiow, N. J., & Spaulding, R. L. A study of the psycholinguistic ablilities of eighty-nine culturally disadvantaged children. A special study report on the ITPA. Education Improvement Program, Duke University, Durham, North Carolina, Fall 1967.

This study assessed the psycholinguistic abilities of a group of children attending pre-school and ungraded primary school programs in Durham, North Carolina. Results indicated a steadily declining level of language development reflected in the ITPA scores and considerably greater variability in the language development of boys as compared with that of girls.

Stedman, D. J., Anastasiow, N. J., & Spaulding, R. L. A study of the developmental behavior of culturally disadvantaged children. A special study report on the PAR. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

The Preschool Attainment Record (PAR) was administered to 159 culturally disadvantaged children, aged two through seven years, in an effort to evaluate the developmental behavior of these children and its relationship to their intellectual performance.

Stedman, D. J., LaBarre, M., Powell, L., Simpson, J., Kerton, B., Pickard, T., & Jones, P. Thirty-six infants in poverty. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

This is a comprehensive description of home situations, family conditions, developmental data, and vignettes from social work visitations accumulated on 36 families who have infants in the longitudinal Infant Evaluation Project.

Stedman, D. J. A plan for the orderly development of child research programs at Duke University. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

Stedman, D. J. Literature review of mental retardation studies using pre-school aged children. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

Stedman, D. J. & Webbink, P. Comparative study of failure avoidance in culturally disadvantaged and non-disadvantaged first-grade children. Education Improvement Program, Duke University, Durham, North Carolina, 1966. (Submitted for publicatior

Twenty-four non-culturally disadvantaged and 20 culturally disadvantaged first grade children were given two puzzles to assemble under stress of time limits. Subjects were allowed to complete one while time was called before completion of the other. The culturally deprived children chose to repeat the previously successful puzzle while the other children did not select between the two puzzles above chance level.

Stedman, D. J. An approach to the study of infant behavior. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

A model is suggested for use in generating notions about infant behavior, describing those behaviors and enhancing inferences made about "internal" developmental processes. An example of a developmental matrix which can flow from such a model is presented as well as suggestions for an experimental stimulating environment.

Stedman, D. J., Clifford, M., & Spitznagel, A. A comparison of parent and teacher ratings on preschool attainment record of seventeen five-year-old disadvantaged children. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

A comparison of attainment qotients suggested a significant discrepancy between parents and teachers' ratings on boys' developmental levels (parents rated boys higher than teachers did). No differences were found in judgments of girls developmental levels.

Stedman, D. J., Anastasiow, N. J., & Spaulding, R. L. A study of the developmental behavior of culturally disadvantaged children. Education Improvement Program, Duke University, Durham, North Carolina, 1969.

Taylor, J. Language stimulation. Volumes I and II. Education Improvement Program, Duke University, Durham, North Carolina, 1969.

This two-volume manual was prepared for use in the Education Improvement Program's pre-school and elementary classrooms. It contains lessons for teacher's use for speech stimulation and language development.

Thursby, M. A preliminary report of the classroom analysis projects in the Durham County Schools Follow Through Program, 1968. (This research was largely supported by Grant OEG 3-7-6700021-5174 (100) from the USOE.)

The effects of modifying first grade experience for culturally disadvantaged children are examined in the Follow Through program. The purpose of the program was to see if initial gains in intellectual functioning shown by children who had attended Head Start could be maintained through the public school years. Classroom analysis data collected on both children and teachers are discussed and individual case studies are presented.

Timoll, S. Efforts to increase the attending behavior of a first grade girl. (Unpublished Master's Thesis at Howard University, 1969)

This behavior modification study was initiated in order to increase the attending behavior of Betty, a first grade white girl in a school for culturally deprived children. The experimental program involved positive teacher attention contingent upon attending behavior, withholding social reinforcement contingent upon non-attending and negative attention-getting behavior, and the presentation of stars contingent upon attending behavior. The results indicated a definite increase in attending behavior.

Turner, D. Sensory-motor activities for early childhood. Education Improvement Program, Duke University, Durham, North Carolina, 1967.

A framework of lesson plans in physical education for young children is detailed in this report.

Wasik, B. H., Senn, K., Welch, R., & Cooper, B. Behavior modification with culturally deprived school children. Journal of Applied Behavior Analysis, 1969, V2, 181-194.

Two second grade Negro girls who exhibited a great deal of disruptive behavior were the subjects of this study in which teachers were used as behavior modifiers. Consistent positive social reinforcement, attention and approval was contingent on desirable classroom behaviors and was withheld for inappropriate classroom behaviors. Social isolation from the classroom was contingent upon unacceptable behaviors. Definite increase occurred for both girls in appropriate classroom behaviors.

Wasik, B. H. Behavior modification in a classroom setting: Two case studies. Paper presented at the Southeastern Psychological Association meeting, Roanoke, Virginia, April, 1968.

Wasik, B. H. The application of Premack's generalization on reinforcement to the management of classroom behavior. Accepted for publication in Journal of Experimental Child Psychology.

In one EIP second grade classroom freedom to engage in a choice activity time was made contingent upon previous appropriate classroom behavior. The average appropriate behavior of the children in the classroom increased during the first contingency period, decreased when the toys were removed, and increased again when the contingency period was reintroduced.

Wasik, B. H. Response strategies of kindergarten children from a middle class environment. (Unpublished paper, 1969)

Because of the disparity between results in previous research findings on response strategies in a discrimination learning task of EIP children, additional testing was conducted with kindergarten children from an upper-middle class background. The results obtained from these kindergarten children was more like those of the EIP second grade children than the EIP kindergarten children, suggesting that a possible cultural difference may contribute to the disparity.

Wasik, B. H. A comparison of conservation scores to intelligence scores and chronological age. (Unpublished paper, 1969)

This study was conducted to assess the level of performance of EIP's primary grade children on several tests of Piaget's concept of conservation. Comparing chronological age and intelligence test scores (WISC) with the total conservation score yielded a correlation of .51 for each variable. Hence, with the EIP population this particular test of conservation shows that relationship between conservation and the two variables of age and intelligence to be of about the same magnitude.

Wasik, B. H. Treatment programs in the Durham Education Improvement Program. Paper presented at the North Carolina Psychological Association meeting, Pinehurst, North Carolina, December 1968.

Wasik, B. H. Behavior modification: the contingent use of teacher attention and choice activity times. Paper presented at the Southeastern Psychological Association meetings, New Orleans, Louisiana, February 1969.

Wasik, B. H. & Wasik, J. L. Response strategies in a discrimination learning task. Paper presented at the Southeastern Psychological Association meetings, New Orleans, Louisiana, February, 1969.

To investigate the response strategies a child uses in a discrimination learning task, children were allowed to make several choices before receiving information on the correctness of their responses. Of 32 possible response patterns, only one was consistently reinforced. The results showed that non-learners as well as learners used strategies at a level different from chance. Also there were differences in the type of strategy used as a function of age (kindergarten, first, and second graders), race, and sex.

Wasik, J. L. & Wasik, B. H. A comparative study of the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) and the Wechsler Intelligence Scale for Children (WISC) for culturally deprived children. (Submitted for publication, 1969)

It was the purpose of this study to test the hypothesis that there would be no significant differences in Verbal IQ, Performance IQ, and Full Scale IQ scores on the WPPSI and WISC tests for the age overlap of six to six-and-one-half years. The results indicated that there were no significant differences in any of the three IQ measures for the effects of time taken or order of test administration. Test effects were highly significant in favor of the WISC for each of the three types of IQ comparison.

Wasik, J. L. & Wasik, B. H. A comparison of WPPSI and WISC IQ tests factor structures for culturally different children. Paper presented at the Southeastern Society for Multivariate Experimental Psychology meetings, New Orleans, Louisiana, February, 1969.

A study of the WPPSI and WISC factor structures obtained for a group of culturally disadvantaged children indicated that the two scales measure somewhat different abilities. The single significant canonical correlation obtained suggests an overall intellectual status measure (i.e., Full Scale IQ) will likely lead to similar results in terms of group reference regardless of which scale is used. Dimensional similarity of the two scales across cultural levels was also demonstrated.

Wasik, B. H. & Papageorgiou, M. The application of behavior techniques to two- and three-year-old nursery school children. Education Improvement Program, Duke University, Durham, North Carolina, 1969.

Social isolation and positive teacher reinforcement were used in this modification study in a nursery school for two- and three-year-olds. Desirable

behavior increased significantly in the case of a boy prone to aggressive and tantrum behavior, and an increase in appropriate classroom behavior was observed in the other children.

Wasik, B. H. & Mason, J. Behavior Modification: A short-term study of the problem behaviors of a second grade boy. Education Improvement Program, Duke University, Durham, North Carolina, 1969.

The goal of this behavior modification study was to eliminate the disruptive, aggressive, and resistive behaviors and to increase the appropriate peer interaction of a seven-year-old boy in an ungraded primary. The treatment program emphasized teacher attention contingent upon appropriate classroom behavior, and social isolation and withholding choice time contingent upon unacceptable behavior. Within eight weeks the subject's data indicated his behavior was no longer a problem in the classroom.

Wasik, B. H. & Gorbet, C. The effects of schedule requirements and the amount of contingent time on children's lever pressing behavior. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

This study replicated and extended previous experiments which presented a situation in which a more probable lever pressing response was made contingent on a less probable response. Three groups of six children were tested under different contingency conditions in which either the response schedule on the less probable response or the amount of time on the more probable response was systematically varied.

Wasik, B. H. & Gorbet, C. The effect of reinforcement on concurrent operants. Education Improvement Program, Duke University, Durham, North Carolina.

Data were collected on two groups of first grade children working with an apparatus which was equipped with two levers, lights, and a marble dispenser. Alternation of responses between the two levers persisted in one group although it was possible to obtain the same abount of reinforcement (marbles) by remaining on the same lever.

Wasik, B. H. & Elsas, E. Behavior modification: A year-long study of the behavior problems of a culturally deprived child. Education Improvement Program, Duke University, Durham, North Carolina, 1969.

A six-year-old boy was the subject of a behavior modification program which utilized several techniques to increase his appropriate classroom behavior. In an ungraded primary where there was a group modification program utilizing the reward of "choice time" contingent upon appropriate classroom behavior, he remained a problem. Other techniques were used to increase social interactive behavior. An uneven overall behavioral improvement was noted.

Wasik, B. H. & Sibley, S. An experimental summer kindergarten for culturally deprived children. Education Improvement Program, Duke University, Durham, North Carolina, 1969.

An experimental summer program was conducted to build both academic and social skills in a group of culturally deprived children prior to entering first grade.

An academic curriculum program included reading, arithmetic, language, and cognitive programs. A behavior modification program which was in effect utilized a token economy system, a choice activity time. Pre- and post evaluation on the WPPSI, ITPA and several small tests showed that significant gains had been made. Early follow-up assessment of these children suggests that these gains are being maintained.

Wasik, B. H., Senn, K. & Epanchin, A. Cooperation and sharing behavior among culturally deprived preschool children. Psychonomic Science, 1969, 17 (6), 371-72

Culturally deprived Negro and white kindergarten children (N=12) were paired in like-sex dyads to investigate cooperative and sharing behavior. The development of cooperative behavior was demonstrated in a game situation in which the children received a marble for cooperative responses. Selfish behavior was analyzed using two different definitions which resulted in varying percents of selfish behavior. A discussion of the disparity ensued.

Wasik, B. H. & Perry, K. Methodology used to correct a learning deficiency in arithmetic. (An unpublished paper, 1969)

This study was initiated to help a second grade boy overcome a deficiency in arithmetic. Several different reinforcement techniques were utilized to increase the child's correct responses. Although a definite measure of success occurred under these conditions, it was believed possible to reduce even more the number of errors by using an errorless discrimination learning paradigm. Additional progress was made in the child's performance.

Wasik, B. H., Knapp, N., Mason, J., & Timoll, S. Behavior modification: A test of teachers' ability to generalize. Education Improvement Program, Duke University, Durham, North Carolina, 1969.

A behavior modification study was undertaken to decrease the aggressive, resistive, and disruptive behavior of one kindergarten child. He was one of several in the class who exhibited problem behavior. A treatment program dependent upon consistent teacher interactions was initiated for Keith. Behavioral data were collected on the other children as well as on Keith. Teacher interaction data were also collected. An increase in appropriate behavior for Keith as well as the class indicated that generalization in the teacher's interactions had occurred.

Wasik, B. H. & Wasik, J. L. A word of caution on the use of the WPPSI in the evaluation of intervention programs. (Accepted for publication, July 1969)

A study of the test-retest data utilized to provide stability estimates of the WPPSI showed a consistent positive gain in performance from the first to second testings. A discussion was presented on the difficulty of interpreting gains on the WPPSI should the scale be used to demonstrate the effectiveness of preschool intervention programs. A procedure was presented that would allow true estimates of the effectiveness of intervention programs when the WPPSI is used as the evaluative measure.

Wasik, J. L. & Wasik, B. H. An investigation of the reliability and validity of a social maturity scale for pre-school children. (Unpublished paper, 1969)

Watkins, E. & Harrison, F. Health care patterns for EIP families. Education Improvement Program, Duke University, Durham, North Carolina, 1968.

This study reflects a group of 50 poverty families' concepts of their health, their health problems, and their methods of coping with them.